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GLOBAL DATA MONITORING REPORT

October, 1997

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Berkshire
RG12 2SZ

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

Dr. B. Macpherson
Head of Observation Processing and Monitoring Section
Data Assimilation
Meteorological Office
London Road
Bracknell
Berkshire
United Kingdom
RG12 2SZ

2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of aircraft reports (in AIREP/AMDAR code, including AIREPs, ACARs, AMDARs and ASDARs) received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 $m\ s^{-1}$ have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR (in AIREP/AMDAR code, including AIREPs, ACARs, AMDARs and ASDARs) in the layer 70-500 hPa. Observations with a vector wind difference > 60 $m\ s^{-1}$ have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed ($m\ s^{-1}$)
7	RMS observation-background vector ($m\ s^{-1}$)

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

N.B. 500 km SATEMs are no longer assimilated into the UKMO global Unified Model. Both 500 km and 120 km SATEMs were replaced on 16th April 1996 by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS (from NOAA-11 and NOAA-14).

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics (**Geopotential Height and Windspeed at 100 and 500 hPa**) for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
6. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.| bias|	$\geq$ 4 hPa	(pressure),
	$\geq$ 5 $m\ s^{-1}$	(wind speed),
	$\geq$ 30 degrees	(direction).
2.SD	$\geq$ 6 hPa	(pressure),
	$\geq$ 80 degrees	(direction).
3.PGE	$\geq$ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
BHFR	ALL	MSLP	SUR	31	11	35	4.6	0.2	4.6
CG2248	ALL	MSLP	SUR	51	51	100	0.0	0.0	0.0
CYBJ	ALL	MSLP	SUR	26	7	27	4.6	2.1	5.0
CYLX	ALL	MSLP	SUR	28	17	61	1.2	-13.3	13.4
C6FA6	ALL	MSLP	SUR	86	1	1	0.9	-6.4	6.4
DOWVD2D	ALL	MSLP	SUR	61	0	0	1.6	5.8	6.0
ELNW7	ALL	MSLP	SUR	37	36	97	0.0	7.7	7.7
ELSU8	ALL	MSLP	SUR	33	1	3	1.6	6.2	6.4
ELUB5	ALL	MSLP	SUR	83	1	1	4.6	-4.1	6.2
EQUZ	ALL	MSLP	SUR	24	24	100	0.0	0.0	0.0
MVQN8	ALL	MSLP	SUR	110	0	0	1.4	10.1	10.2
PEXU	ALL	MSLP	SUR	45	3	7	5.0	-6.1	7.9
UFYN	ALL	MSLP	SUR	21	0	0	1.7	-4.0	4.4
UHVW	ALL	MSLP	SUR	36	1	3	2.0	4.9	5.3
VCLX	ALL	MSLP	SUR	20	17	85	3.3	-9.2	9.8
VCQM	ALL	MSLP	SUR	21	10	48	4.7	-6.6	8.1
VCTD	ALL	MSLP	SUR	22	20	91	0.3	-12.0	12.1
VDDL	ALL	MSLP	SUR	24	18	75	5.2	-5.2	7.3
VDWC	ALL	MSLP	SUR	20	15	75	5.2	-2.2	5.6
VOXZ	ALL	MSLP	SUR	24	22	92	1.8	-7.0	7.3
VVML	ALL	MSLP	SUR	22	0	0	1.4	-4.6	4.8
V7AM3	ALL	MSLP	SUR	56	0	0	4.0	4.5	6.0
WCF3012	ALL	MSLP	SUR	68	31	46	4.1	-10.1	10.9
XLW363	ALL	MSLP	SUR	20	0	0	1.1	5.3	5.4
3ELC	ALL	MSLP	SUR	32	0	0	1.8	-4.5	4.8
3ESQ5	ALL	MSLP	SUR	20	0	0	1.2	4.1	4.3
3FGN3	ALL	MSLP	SUR	35	0	0	1.8	-5.5	5.8
3FTJ4	ALL	MSLP	SUR	20	0	0	1.4	10.0	10.1
62402	ALL	MSLP	SUR	41	0	0	2.7	4.2	5.0
9MCP6	ALL	MSLP	SUR	35	0	0	1.1	7.8	7.9
9VIH	ALL	MSLP	SUR	30	0	0	1.2	-5.9	6.1
9VPK	ALL	MSLP	SUR	32	0	0	1.1	7.2	7.3
WIND SPEED									
C6BO9	ALL	SPEED	SUR	23	0	0	3.7	6.6	7.6
DPUF	ALL	SPEED	SUR	70	0	0	4.3	8.3	9.4
ELOW4	ALL	SPEED	SUR	22	0	0	6.7	5.0	8.4
ELRJ5	ALL	SPEED	SUR	22	0	0	3.8	6.4	7.4
GQEK	ALL	SPEED	SUR	31	0	0	3.3	5.2	6.2
KCDK	ALL	SPEED	SUR	21	0	0	5.5	5.0	7.4
LAJY2	ALL	SPEED	SUR	23	0	0	4.8	5.2	7.1
PEXU	ALL	SPEED	SUR	30	2	7	5.3	6.2	8.2
PFDI	ALL	SPEED	SUR	31	0	0	7.0	6.1	9.2
UFSZ	ALL	SPEED	SUR	27	0	0	1.8	5.4	5.7
3ELC	ALL	SPEED	SUR	28	0	0	6.0	12.3	13.6
3ELC6	ALL	SPEED	SUR	57	5	9	3.8	6.8	7.8
3ERB4	ALL	SPEED	SUR	26	0	0	1.7	-5.0	5.3
3ETH4	ALL	SPEED	SUR	53	0	0	2.4	5.0	5.6
8PNH	ALL	SPEED	SUR	32	0	0	5.7	8.6	10.3
WIND DIRECTION									
DYZJ	ALL	DIRN.	SUR	22	0	0	30.9	40.2	50.7
PEXU	ALL	DIRN.	SUR	24	2	8	79.2	35.1	86.7
ZCBE7	ALL	DIRN.	SUR	20	0	0	83.1	32.7	89.3
3FSL4	ALL	DIRN.	SUR	33	0	0	82.2	24.7	85.8
45143	ALL	DIRN.	SUR	90	0	0	35.5	39.3	53.0
51303	ALL	DIRN.	SUR	28	0	0	96.0	-5.9	96.2
51304	ALL	DIRN.	SUR	41	0	0	49.5	-32.5	59.2
51305	ALL	DIRN.	SUR	56	0	0	73.9	-34.1	81.4
52313	ALL	DIRN.	SUR	51	0	0	39.0	-31.3	50.0
9MBU3	ALL	DIRN.	SUR	22	0	0	69.8	67.7	97.3

AVAILABILITY – SHIP/SYNOP – OCTOBER 1997
MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18688

FIGURE 1

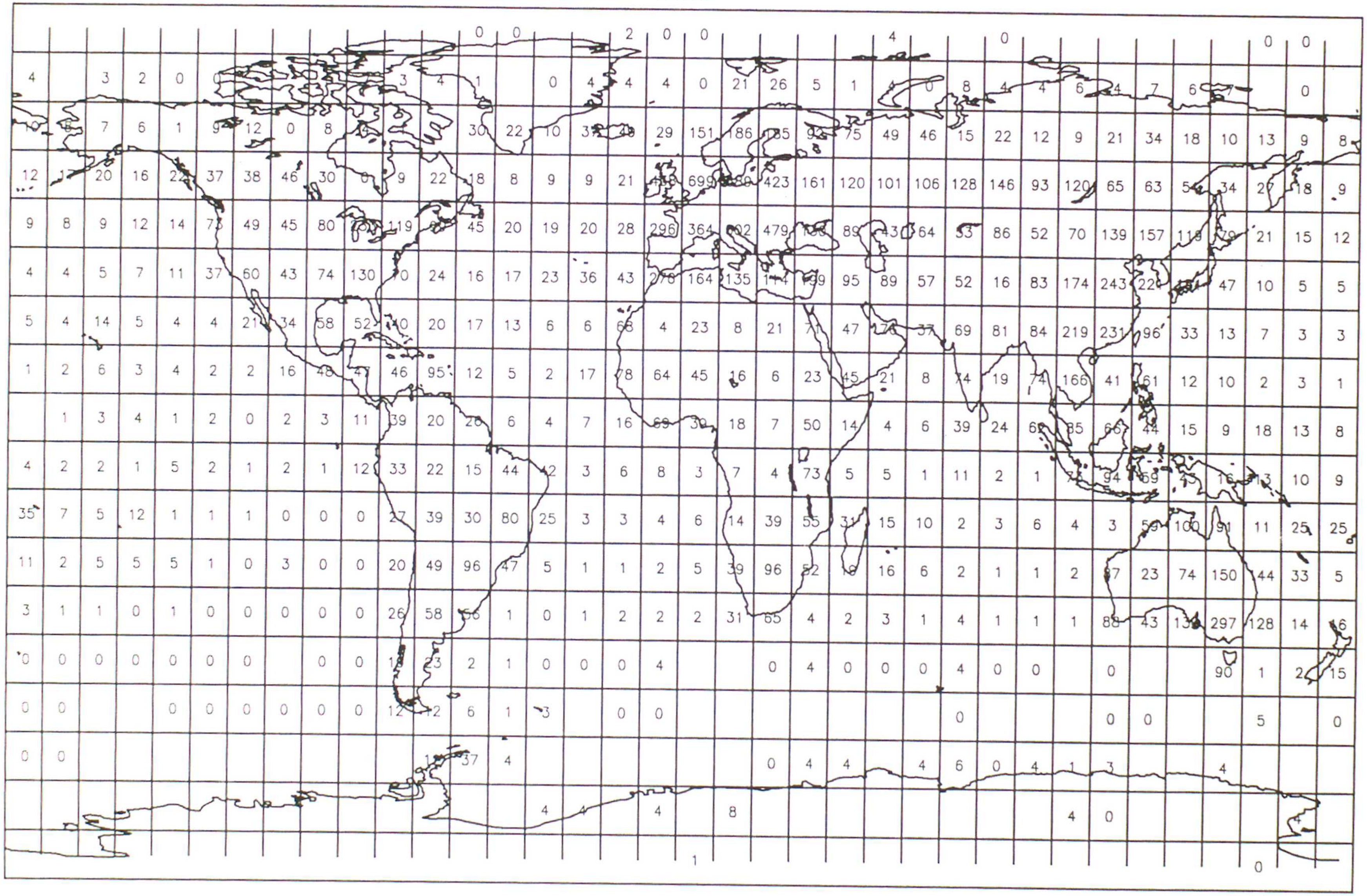


TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoys.
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)	
	:25 m s^{-1}	(vector wind)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.| bias|	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
	2.SD	> 6 hPa	(pressure),
		≥ 80 degrees	(direction).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
17655	-38.4	83.7	ALL	MSLP	SUR	152	43	28	7.4	2.8	7.9
21522	36.4	158.6	ALL	MSLP	SUR	41	11	27	3.6	1.1	3.7
25522	78.0	-180.0	ALL	MSLP	SUR	603	504	84	8.1	4.6	9.3
46588	39.0	-130.1	ALL	MSLP	SUR	132	88	67	3.1	6.9	7.6
46916	27.3	-131.3	ALL	MSLP	SUR	143	2	1	5.2	-7.1	8.8
47602	83.6	-85.6	ALL	MSLP	SUR	750	114	15	7.0	-0.2	7.0
53550	-13.7	121.4	ALL	MSLP	SUR	101	35	35	0.8	-0.3	0.9
54915	-31.2	-168.4	ALL	MSLP	SUR	52	0	0	2.2	-7.8	8.1
61551	44.7	-63.6	ALL	MSLP	SUR	24	0	0	1.0	-4.0	4.1
61552	44.7	-63.6	ALL	MSLP	SUR	27	0	0	0.9	-4.2	4.3
WIND SPEED											
41521	19.5	-52.8	ALL	SPEED	SUR	78	17	22	7.6	8.0	11.0
WIND DIRECTION											
41521	19.5	-52.8	ALL	DIRN.	SUR	61	17	28	80.0	0.3	80.0
44621	53.9	-34.3	ALL	DIRN.	SUR	284	3	1	36.4	-33.4	49.4

AVAILABILITY – DRIFTER – OCTOBER 1997
MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 5623

FIGURE 2

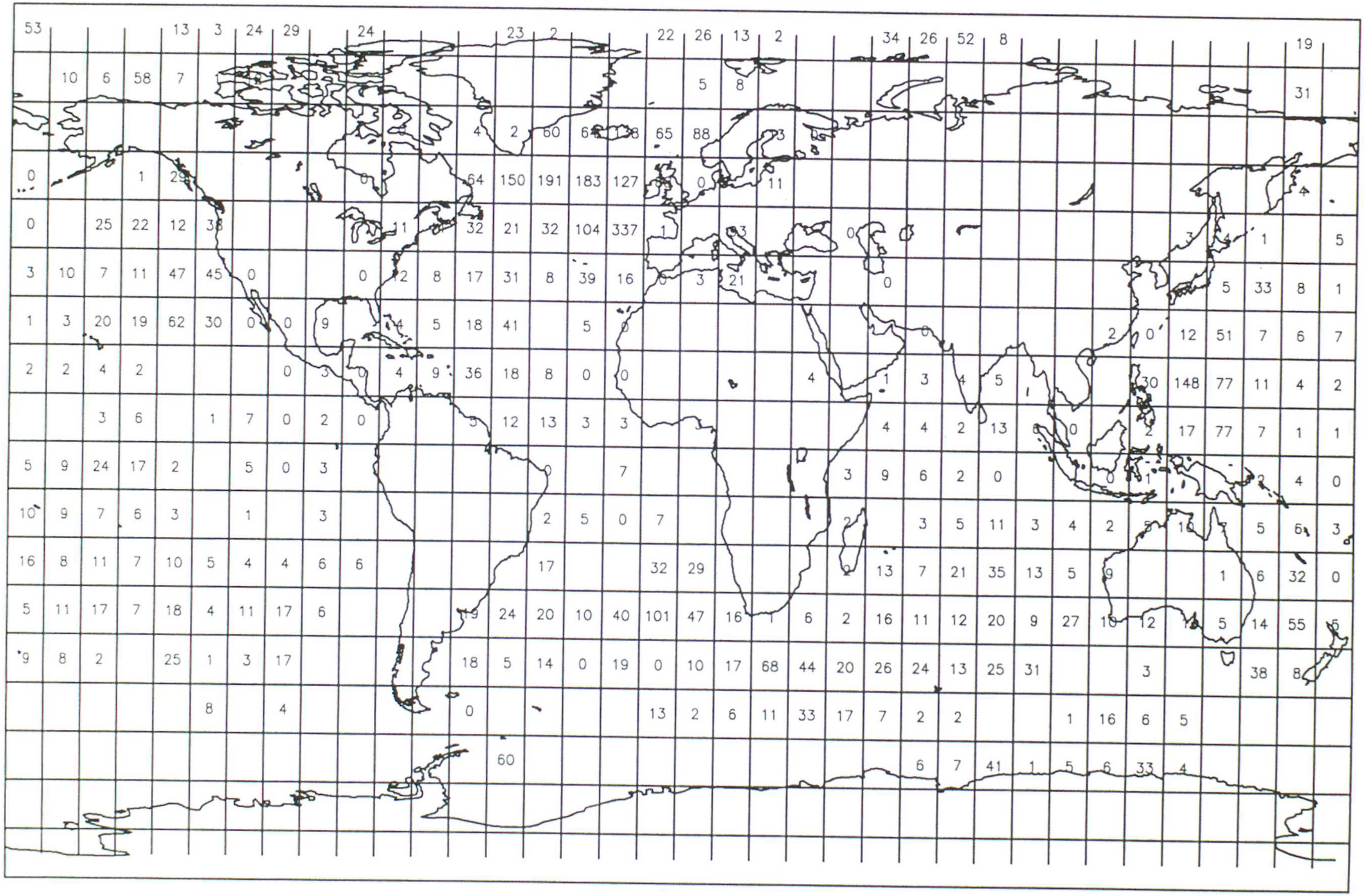

53 13 3 24 29 24 23 2 22 26 13 2 34 26 52 8 19
10 6 58 7 5 8 31
4 2 60 64 38 65 88 23 0
0 1 29 0 64 150 191 183 127 0 11 4
0 25 22 12 38 11 32 21 32 104 337 1 33 0 3 4 1 5
3 10 7 11 47 45 0 0 2 8 17 31 8 39 16 0 3 21 0 5 33 8 1
1 3 20 19 62 30 0 0 9 4 5 18 41 5 0 0 2 0 12 51 7 6 7
2 2 4 2 0 3 0 4 9 36 18 8 0 0 4 1 3 4 5 30 148 77 11 4 2
3 6 1 7 0 2 0 5 12 13 3 3 4 4 2 13 0 0 2 17 77 7 1 1
5 9 24 17 2 5 0 3 0 7 3 9 6 2 0 0 1 2 4 0
10 9 7 6 3 1 3 2 5 0 7 2 3 5 11 3 4 2 5 16 7 5 6 3
16 8 11 7 10 5 4 4 6 6 17 32 29 2 13 7 21 35 13 5 9 1 6 32 0
5 11 17 7 18 4 11 17 6 19 24 20 10 40 101 47 16 1 6 2 16 11 12 20 9 27 10 12 12 5 14 55 5
9 8 2 25 1 3 17 18 5 14 0 19 0 10 17 68 44 20 26 24 13 25 31 3 38 8
8 4 0 13 2 6 11 33 17 7 2 2 1 16 6 5
60 6 7 41 1 5 6 33 4

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.| bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	121	0	0	1	1.0	5.1	5.2
60468	35.6N	6.2E	1052	S8	113	113	100	0	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	119	119	100	0	0.0	0.0	0.0
60535	34.7N	3.3E	1144	S8	80	0	0	0	1.2	-5.7	5.8
60571	31.6N	2.2W	773	S8	116	1	1	2	1.2	-4.1	4.3
60670	24.6N	9.5E	1054	S8	105	1	1	94	1.5	8.2	8.3
61233	15.2N	7.3W	265	M	72	0	0	0	1.1	-4.0	4.1
62402	26.2N	32.7E	77	M	26	26	100	0	0.0	0.0	0.0
63210	11.3N	49.2E	2	M	35	0	0	31	2.3	-4.8	5.3
63330	13.5N	39.5E	2212	MS	39	0	0	0	0.7	-5.4	5.4
63333	11.1N	39.7E	1916	MS	51	0	0	0	1.0	6.9	7.0
63402	7.7N	36.8E	1577	MS	61	4	7	7	1.5	-9.9	10.0
63451	8.7N	39.0E	1876	MS	40	0	0	3	1.6	-5.0	5.2
63453	8.8N	39.8E	1062	S	36	2	6	0	1.3	12.1	12.2
63478	5.1N	44.6E	320	MS	39	0	0	0	1.0	7.4	7.5
68014	19.6S	18.1E	1411	S8	88	0	0	34	1.1	-4.8	4.9
68038	20.5S	26.0E	903	8	75	0	0	4	1.6	4.4	4.7
68396	26.5S	31.3E	641	S8	45	0	0	0	1.1	4.2	4.3
68442	29.1S	26.3E	1354	S8	119	0	0	0	1.0	-5.3	5.4
68488	28.4S	31.1E	1279	S8	81	81	100	0	0.0	0.0	0.0
68752	32.8S	27.4E	524	S8	110	0	0	0	1.1	-8.3	8.4

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
24671	63.9N	135.9E	402	MS	108	0	0	32	3.5	4.4	5.6
30320	56.9N	105.7E	669	MS	56	56	100	0	0.0	0.0	0.0
30554	54.5N	113.6E	995	MS	63	0	0	3	1.4	10.1	10.2
31253	54.7N	128.9E	357	MS	121	1	1	6	2.4	-4.7	5.3
35173	51.6N	69.8E	620	MS	59	59	100	0	0.0	0.0	0.0
38954	37.5N	71.5E	2077	8	32	0	0	13	1.8	-4.8	5.1
40701	39.3N	44.4E	1470	MS	104	0	0	0	1.1	7.2	7.3
40743	36.2N	57.7E	941	MS	120	1	1	0	1.1	-4.6	4.7
40762	35.3N	59.2E	1333	MS	118	6	5	0	1.3	-13.1	13.2
40763	35.2N	58.5E	1060	MS	50	0	0	0	1.2	-4.8	4.9
40783	32.4N	49.7E	1972	MS	107	0	0	0	1.4	-5.4	5.6
40789	33.8N	55.1E	921	MS	95	1	1	0	1.3	8.9	9.0
40798	32.3N	50.9E	1991	MS	100	0	0	1	1.3	-7.4	7.5
40836	30.8N	51.7E	1880	MS	88	2	2	0	1.3	8.5	8.6
40859	29.0N	53.7E	1383	MS	103	0	0	0	1.1	9.3	9.4
41254	23.1N	57.7E	1755	S8	82	82	100	0	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	38	0	0	0	1.4	6.3	6.5
41466	13.7N	44.1E	1385	8	36	1	3	3	1.5	-6.2	6.4
44477	27.0N	87.4E	1445	S8	66	65	98	0	0.0	-2.1	2.1
52602	38.8N	93.4E	2734	S	123	0	0	0	1.2	-5.0	5.1
52866	36.6N	101.8E	2262	S	123	0	0	0	1.1	-4.0	4.1
54587	39.1N	123.2E	-9999	M	98	0	0	3	1.6	-4.1	4.4
56144	31.8N	98.6E	3185	S	116	1	1	0	1.6	-4.5	4.8
56444	28.5N	98.9E	3488	S	117	117	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	114	0	0	0	1.6	7.3	7.5

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	MS	28	1	4	7	2.5	-5.2	5.8
82704	7.6S	72.7W	170	MS	50	0	0	0	1.4	-4.1	4.3
83214	10.3S	54.9W	285	MS	50	0	0	10	3.1	-5.6	6.4
83235	12.4S	46.4W	660	MS	59	0	0	2	1.3	7.2	7.3
83332	14.1S	46.4W	950	MS	58	26	45	0	0.8	13.8	13.8

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83361	15.6S	56.1W	179	MS	59	0	0	3	1.7	4.5	4.8
83408	14.3S	43.8W	556	MS	55	1	2	0	1.2	11.1	11.2
83423	16.7S	49.3W	729	MS	62	1	2	0	1.1	-5.1	5.2
83488	17.8S	42.9W	1097	MS	59	59	100	0	0.0	0.0	0.0
83531	18.6S	46.5W	896	MS	58	0	0	0	1.0	-6.2	6.3
83587	19.9S	43.9W	850	MS	59	0	0	2	1.3	-7.2	7.3
83704	22.3S	53.9W	369	MS	39	0	0	8	4.3	-5.1	6.7
83773	23.1S	48.9W	793	S	22	0	0	0	1.1	-5.4	5.5
84401	5.2S	80.6W	55	MS	90	0	0	14	1.5	5.8	6.0
84425	5.9S	76.1W	184	MS	70	0	0	1	1.5	4.1	4.4
84455	6.5S	76.4W	282	MS	71	0	0	1	1.5	6.6	6.8
84472	7.1S	78.5W	2622	S	47	1	2	0	1.2	-5.1	5.2
84501	8.1S	79.0W	30	MS	96	0	0	24	1.4	6.8	6.9
84542	9.4S	77.6W	2760	S	41	0	0	0	1.4	4.8	5.0
84628	12.0S	77.1W	13	MS	123	0	0	0	1.2	4.5	4.7
84686	13.6S	72.0W	3249	S	111	0	0	1	1.6	-5.4	5.6
84782	18.1S	70.3W	469	MS	95	2	2	7	1.9	10.0	10.2
85141	14.5S	67.6W	202	MS	36	1	3	47	2.0	5.6	5.9
85312	19.8S	63.9W	992	S	25	2	8	4	1.9	-9.0	9.2
85406	18.3S	70.3W	58	M	122	0	0	7	1.7	8.5	8.7
85418	20.5S	70.2W	48	M	119	0	0	0	1.4	5.6	5.8
85442	23.4S	70.4W	135	M	122	0	0	1	1.6	5.1	5.3

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
76118	30.4N	109.7W	1040	MS	22	0	0	5	1.8	-9.9	10.1
76151	29.2N	118.3W	23	MS	20	0	0	0	1.5	4.9	5.1
76539	22.1N	101.0W	1870	MS	63	0	0	2	0.9	-4.3	4.4
76634	20.1N	98.4W	2135	MS	56	0	0	77	1.1	-4.7	4.8
76658	19.2N	103.7W	494	MS	24	0	0	4	2.5	6.1	6.6
76762	17.5N	99.5W	1865	MS	60	60	100	0	0.0	0.0	0.0
76775	17.1N	96.7W	1550	MS	35	0	0	0	0.8	4.2	4.3
78627	15.3N	91.5W	1901	S	37	0	0	0	1.0	4.5	4.6

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
94955	41.6S	145.7E	684	MS	226	226	100	0	0.0	0.0	0.0

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
02045	67.8N	20.4E	408	M	71	71	100	0	0.0	0.0	0.0
16227	41.9N	13.6E	655	MS	120	110	92	0	1.0	-13.5	13.5
16549	39.1N	8.3E	12	MS	120	0	0	0	1.0	-4.1	4.2
16614	40.4N	21.3E	604	MS	54	0	0	4	1.4	-7.1	7.2

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89004	71.7S	2.8W	817	S	73	73	100	48	0.0	0.0	0.0
89108	89.0S	0.3W	2754	S	44	4	9	0	3.1	4.4	5.4
89264	71.4S	68.9W	780	S	76	0	0	13	2.9	5.8	6.5
89324	80.0S	120.0W	1530	S	94	0	0	5	4.6	-4.0	6.1
89345	89.7S	148.8W	620	S	95	72	76	0	2.8	-11.7	12.0
89606	78.5S	106.9E	3490	S7	117	27	23	0	4.6	8.7	9.8
89664	77.9S	166.7E	24	MS	109	0	0	0	2.5	-4.6	5.2
89744	74.0S	43.0E	3353	S	92	0	0	3	1.9	4.4	4.8
89774	73.4S	76.8E	2565	S	95	0	0	1	2.5	4.0	4.7
89828	74.5S	123.0E	3280	S	86	7	8	0	4.6	5.8	7.4
89860	74.2S	160.3E	1772	S	81	0	0	0	2.7	-9.2	9.6

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in $m\ s^{-1}$

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 $m\ s^{-1}$ Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: US ACARs and ADS data are shown at the bottom of the table as US ACAR and ADS respectively.

IDENT.	N.REP.	TEMPERATURE PG	PR	RMS	BIAS	N.REP.	WIND PG	PR	PC	RMS	BIAS
AAA	137	4	10	2.3	1.0	132	0	100	2	10.9	0.1
AAL	5410	0	1	1.7	0.2	5400	0	2	0	8.5	0.8
AAR	2031	1	2	1.9	0.0	2007	0	3	0	9.3	0.8
ACA	1962	0	2	1.8	0.0	2003	0	2	0	8.2	0.8
ACI	40	3	3	1.3	0.5	39	0	0	0	6.8	0.4
AEA	736	0	100	2.8	1.1	715	0	4	0	9.0	0.9
AEL	521	6	18	3.6	1.1	516	0	6	0	10.3	1.3
AEY	50	0	4	3.1	1.7	49	0	4	0	9.0	1.4
AFL	390	0	2	2.0	0.5	377	1	5	1	8.4	0.0
AFR	1776	1	7	1.9	0.2	1691	0	7	0	9.3	1.1
AIH	460	1	3	1.7	0.3	406	0	6	0	11.5	1.0
AJM	87	2	6	1.5	-0.3	60	0	2	0	8.8	0.8
AMT	357	0	99	2.8	1.7	343	0	3	0	7.1	0.8
AMX	322	1	2	2.0	0.3	319	0	5	0	10.7	1.1
ANA	1108	2	3	1.8	-0.4	1094	0	4	0	9.7	0.5
ANZ	2368	3	5	2.0	0.4	2282	0	4	0	8.6	1.0
AOM	652	5	9	2.1	1.0	564	0	6	1	9.1	0.7
ARP	142	1	5	2.0	0.9	134	0	6	1	7.4	2.0
AUA	24	0	0	1.6	-0.8	25	0	0	0	6.4	1.3
AVA	467	0	3	1.7	0.3	466	0	3	0	9.7	1.3
AVN	44	2	2	1.8	0.8	44	0	0	0	6.7	1.9
AXA	62	5	6	2.6	1.0	59	0	7	0	13.6	1.5
AZA	461	2	7	2.4	0.4	443	0	5	0	9.9	1.2
BAL	1010	0	10	1.8	-0.3	982	0	10	0	8.6	1.0
BAW	1904	1	9	2.0	0.2	1858	0	10	0	8.4	0.6
BBB	66	0	5	1.7	0.3	60	0	5	0	7.4	0.8
BWA	262	3	100	3.6	2.7	250	0	6	0	9.9	0.7
CAL	1862	0	1	1.8	0.0	1852	0	3	0	9.3	0.9
CCA	165	2	7	2.8	0.8	136	1	99	0	12.7	0.0
CDN	1804	0	1	1.9	0.4	1784	0	2	0	8.4	0.5
CES	329	1	2	2.0	0.5	325	1	4	0	10.0	0.1
CFC	21	0	10	2.3	-0.4	21	0	19	0	12.1	-0.9
CFG	1100	0	3	1.8	-0.7	1088	0	3	0	8.8	0.7
CKS	319	2	4	2.8	1.8	279	0	3	0	7.7	1.4
CKT	251	1	5	1.7	0.6	242	0	7	0	9.1	1.7
CLX	391	0	1	1.8	-0.4	399	0	3	0	8.5	0.2
CMI	679	1	2	1.8	0.9	661	0	3	1	8.1	1.4
CMM	477	7	8	1.8	0.1	471	0	1	0	7.9	1.0
COA	1358	0	3	1.8	0.5	1354	0	6	0	10.4	1.4
CPA	49	0	4	1.8	-0.1	48	0	6	0	8.3	-0.3
CRL	353	1	6	2.2	0.9	339	0	5	0	8.7	0.9
CSA	31	3	3	1.7	-0.6	31	0	0	0	7.3	-0.5
CSN	80	6	5	2.2	-0.2	80	1	8	0	12.5	0.0
CTB	277	0	2	1.8	0.3	276	0	3	0	9.2	1.6
CTM	27	0	11	3.1	-0.4	22	0	100	0	8.1	2.1
CUB	529	4	12	2.8	1.4	517	0	11	0	11.0	1.4
DAF	26	0	0	2.2	-1.3	26	0	4	0	11.9	1.3
DAL	5576	0	2	2.0	0.3	5596	0	3	0	8.5	0.7
DHL	118	15	100	3.6	-1.2	117	1	19	2	12.8	3.4
DLH	3948	0	6	2.0	0.2	3938	0	9	2	8.1	0.6
DOA	56	21	27	3.6	1.3	57	0	9	0	12.9	1.3
EIA	225	3	6	1.9	0.2	222	0	5	0	8.7	0.9
ELY	164	1	11	1.6	-0.2	168	1	14	1	11.0	2.2
EVA	1698	1	2	1.9	-0.4	1683	0	3	0	9.1	0.6
EWW	117	2	72	3.1	1.0	122	1	100	0	11.7	2.5
FCL	21	0	5	2.7	-0.5	21	0	5	0	6.3	1.2
FDX	1145	1	3	1.8	0.6	1144	0	4	0	9.0	0.7
FIN	330	0	2	2.0	0.3	329	1	2	0	8.7	1.4
FJI	497	8	10	1.9	1.1	458	0	3	0	8.6	0.8

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FOM	132	3	7	2.5	0.9	128	0	3	0	8.9	1.2
GAF	129	1	2	2.2	-0.7	129	1	3	1	8.1	1.4
GCO	25	0	0	2.2	1.2	25	0	12	0	12.7	-0.2
GHA	41	7	5	1.5	0.9	26	0	4	0	12.4	2.0
GIA	240	2	4	1.9	0.8	189	0	38	1	8.1	1.6
GTI	45	0	27	5.2	3.5	51	2	4	0	7.3	1.5
HAL	1598	1	1	1.5	0.2	1564	0	3	0	9.0	1.0
HBI	21	5	14	1.6	0.4	20	0	5	0	5.9	1.1
HLF	155	0	2	1.8	-0.6	152	0	5	0	10.7	1.0
HRH	66	9	14	2.0	1.1	59	0	5	0	6.0	0.7
IBE	2595	1	9	2.2	0.8	2585	0	11	0	10.2	1.0
ICE	922	1	2	2.0	0.3	934	0	3	0	8.5	0.5
JAA	21	10	5	2.3	1.2	21	0	0	0	7.8	1.4
JAL	6406	0	1	1.8	0.4	6382	0	2	0	8.9	0.6
JAZ	65	5	9	2.2	1.1	62	0	5	0	10.8	-1.1
KAL	3795	1	2	2.0	0.0	3729	0	3	0	9.4	0.8
KLM	3042	0	2	1.7	0.2	3045	0	3	0	8.5	0.6
LDA	275	1	8	1.9	-0.8	273	0	8	0	9.9	1.2
LDI	455	0	17	3.4	2.4	460	1	17	0	9.5	0.6
LIB	241	1	4	2.0	0.8	232	0	4	0	10.1	1.4
LKR	38	0	0	1.9	0.8	38	0	0	0	8.7	0.4
LOB	21	0	0	2.9	1.9	22	0	0	0	6.0	0.4
LOT	318	0	2	2.2	-0.8	316	1	3	0	10.3	0.6
LTU	935	0	4	1.7	0.3	925	0	5	0	8.6	0.9
MAS	302	0	0	1.8	0.0	255	0	4	0	10.7	0.9
MAU	22	0	5	1.3	0.5	20	0	0	0	6.5	1.2
MDA	191	1	1	1.9	0.4	189	0	4	0	10.4	0.4
MON	31	0	6	1.2	0.3	25	0	12	0	13.0	1.1
MPD	301	1	5	2.1	0.8	293	0	6	0	9.4	1.0
MPH	1033	0	3	1.9	-0.5	1028	0	3	0	8.5	0.4
NCA	652	0	1	1.8	0.3	651	0	3	0	8.3	0.7
NWA	10042	0	1	1.9	0.5	10029	0	2	0	8.6	0.6
OAL	28	0	0	2.5	1.9	29	0	7	0	11.5	0.7
PAC	163	0	2	2.0	0.6	153	0	3	0	9.4	1.1
PAL	1049	0	1	1.6	-0.1	1002	0	3	1	9.2	1.0
PAO	238	2	5	1.6	0.2	234	0	4	1	6.7	1.0
QFA	1468	2	4	1.9	0.4	1452	0	4	0	8.6	0.8
RAF	126	0	1	2.0	0.9	124	0	2	0	12.4	2.6
RAM	77	0	3	2.1	-0.1	75	1	8	0	11.9	0.5
RCH	390	0	96	2.7	1.0	395	1	96	0	11.4	1.2
RJA	100	2	9	2.2	0.8	100	0	5	0	6.2	0.2
RKA	98	0	1	1.6	-0.1	68	1	4	0	9.5	-0.1
ROY	223	0	2	1.7	-0.2	228	0	4	0	8.7	0.4
RRR	122	2	8	2.4	1.1	125	0	7	0	9.3	0.9
SAA	320	1	3	1.9	0.0	283	0	4	0	8.1	-0.1
SAB	79	0	0	1.4	0.3	80	0	0	0	7.7	1.8
SAS	1360	0	1	2.0	0.1	1364	0	2	0	8.2	0.5
SCX	196	1	1	1.6	0.7	155	0	3	1	6.8	0.7
SHE	23	0	17	4.3	2.9	23	0	13	0	8.1	-0.7
SIA	1403	0	1	1.8	-0.4	1378	0	3	0	9.5	1.2
SLR	167	1	15	1.8	-0.4	167	0	16	0	10.1	1.1
SOL	27	0	0	1.3	0.6	27	0	0	0	6.3	1.7
SPP	201	0	1	1.5	0.0	194	0	3	0	9.5	0.7
SSV	81	0	2	2.2	0.0	83	0	0	0	6.0	-0.3
SVA	136	1	7	1.8	-0.4	136	0	100	0	13.3	2.4
SVV	24	4	4	3.0	1.1	22	0	5	0	10.7	2.5
SWR	176	1	4	1.7	0.5	182	0	3	0	6.9	1.1
TAP	719	1	3	1.8	-0.1	704	0	4	0	9.9	1.2
THA	450	1	2	1.7	-0.3	428	1	4	0	9.6	0.7

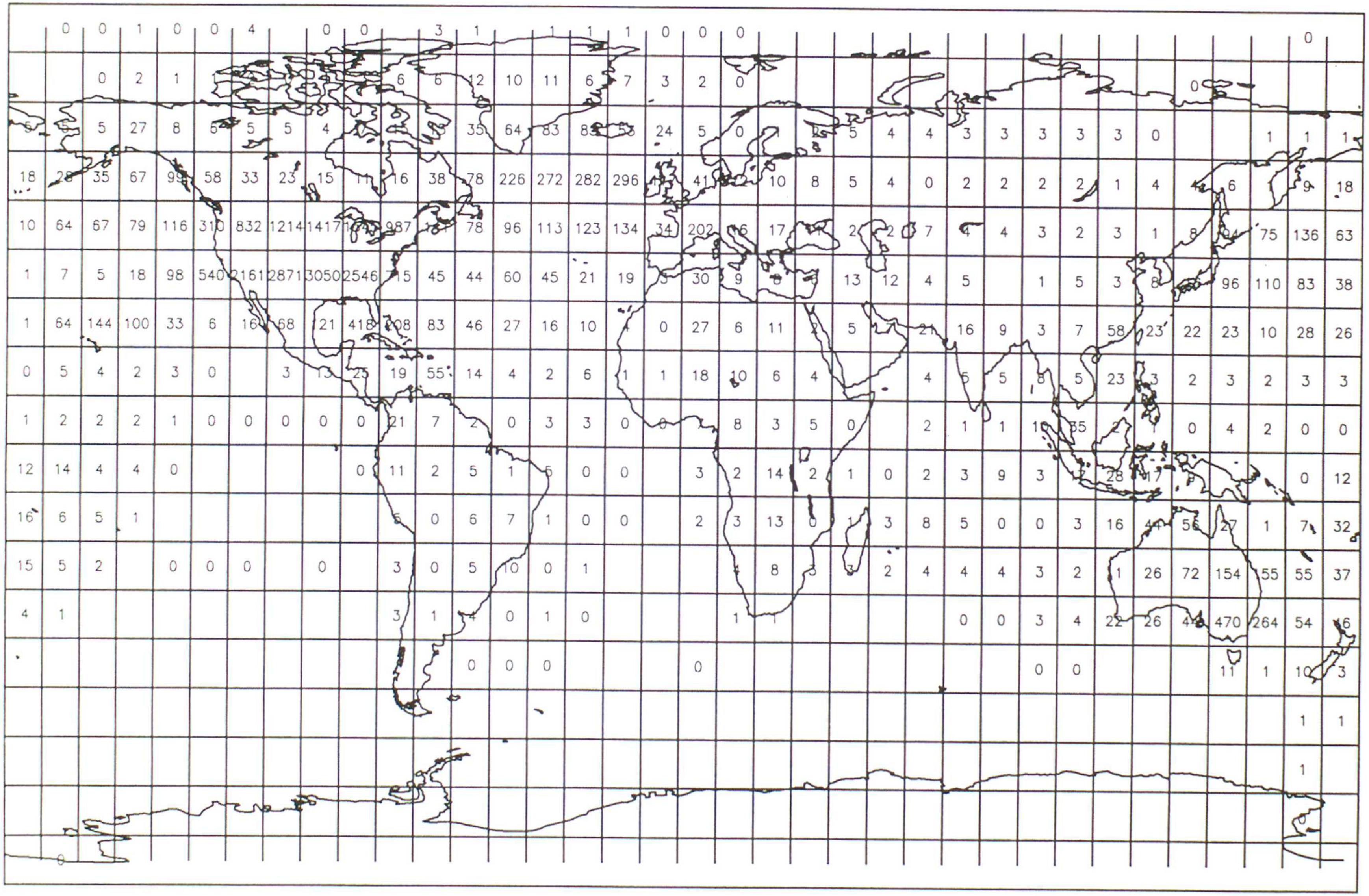
		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
THY	31	6	23	3.3	2.4	34	0	12	0	6.9	-0.1
TOW	177	1	3	2.2	0.6	177	0	5	0	9.1	2.0
TSC	147	1	5	2.3	0.2	146	0	5	0	9.5	0.6
TWA	1742	0	2	1.9	0.3	1737	0	4	0	9.6	1.0
UAL	12456	1	3	1.9	0.1	12415	0	2	0	8.0	0.7
ULE	284	2	3	1.9	0.5	280	0	2	0	8.1	0.8
UPS	765	0	5	1.6	0.2	769	0	5	0	7.3	0.8
USA	446	2	3	1.9	0.3	445	0	1	0	8.7	1.5
VIR	244	0	1	1.7	-0.2	254	0	4	0	8.4	0.8
VKG	55	0	0	2.0	1.0	56	0	2	0	10.8	1.6
VRG	67	1	4	2.4	0.9	64	2	5	0	10.2	1.5
VSP	229	1	2	2.1	0.6	224	0	2	0	8.8	1.2
WOA	85	0	2	1.4	0.6	89	0	4	0	8.9	2.2
AN	28688	0	0	1.4	0.1	28425	0	0	0	6.6	1.2
BA	18403	0	0	1.2	0.4	18372	0	0	0	6.9	1.2
FJ	35	3	9	1.4	0.8	35	0	9	0	6.1	0.7
IT	286	0	0	0.7	0.0	286	0	0	0	5.6	0.0
KL	13357	0	9	1.3	0.6	13353	0	10	0	6.5	0.8
LH	3774	0	1	1.4	0.4	3728	0	1	0	6.6	1.3
MK	2749	0	0	1.2	0.7	2724	0	16	0	6.9	1.6
QF	11629	0	0	1.2	0.3	11626	0	0	0	6.3	1.2
SA	2461	0	0	1.3	0.9	2460	0	1	0	6.8	1.5
SV	448	0	100	1.5	0.8	446	0	100	0	6.4	1.6
N	566	1	5	2.7	1.0	511	0	4	0	9.9	1.3
ADS	58	0	0	1.0	-0.1	58	0	0	0	5.2	0.4
US_ACAR	523918	0	2	1.3	0.2	522730	0	2	0	6.4	0.9

MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA

OCTOBER 1997

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3


0 0 1 0 0 4 0 0 3 1 1 1 1 0 0 0 0
0 2 1 6 6 12 10 11 6 7 3 2 0 0
5 5 5 27 8 5 5 5 4 35 64 83 83 53 24 5 0 5 4 4 3 3 3 3 3 0 1 1 1
18 28 35 67 99 58 33 23 15 11 16 38 78 226 272 282 296 41 10 8 5 4 0 2 2 2 2 1 4 4 6 9 18
10 64 67 79 116 310 832 1214 1417 987 78 96 113 123 134 34 202 16 17 2 2 7 4 4 3 2 3 1 8 75 136 63
1 7 5 18 98 540 2161 2871 3050 2546 715 45 44 60 45 21 19 30 9 13 12 4 5 1 5 3 8 96 110 83 38
1 64 144 100 33 6 16 68 121 418 208 83 46 27 16 10 0 27 6 11 5 21 16 9 3 7 58 23 22 23 10 28 26
0 5 4 2 3 0 3 13 25 19 55 14 4 2 6 1 1 18 10 6 4 4 5 5 8 5 23 3 2 3 2 3 3
1 2 2 2 1 0 0 0 0 0 21 7 2 0 3 3 0 0 8 3 5 0 2 1 1 10 35 2 1 0 4 2 0 0
12 14 4 4 0 0 11 2 5 1 5 0 0 3 2 14 2 1 0 2 3 9 3 12 28 17 0 12
16 6 5 1 5 0 6 7 1 0 0 2 3 13 0 1 3 8 5 0 0 3 16 44 56 27 1 7 32
15 5 2 0 0 0 0 3 0 5 10 0 1 4 8 3 3 2 4 4 4 3 2 1 26 72 154 55 55 37
4 1 3 1 4 0 1 0 1 1 0 0 3 4 22 26 44 470 264 54 16
0 0 0 0 0 0 11 1 10 3
1 1
1

AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA
OCTOBER 1997
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4

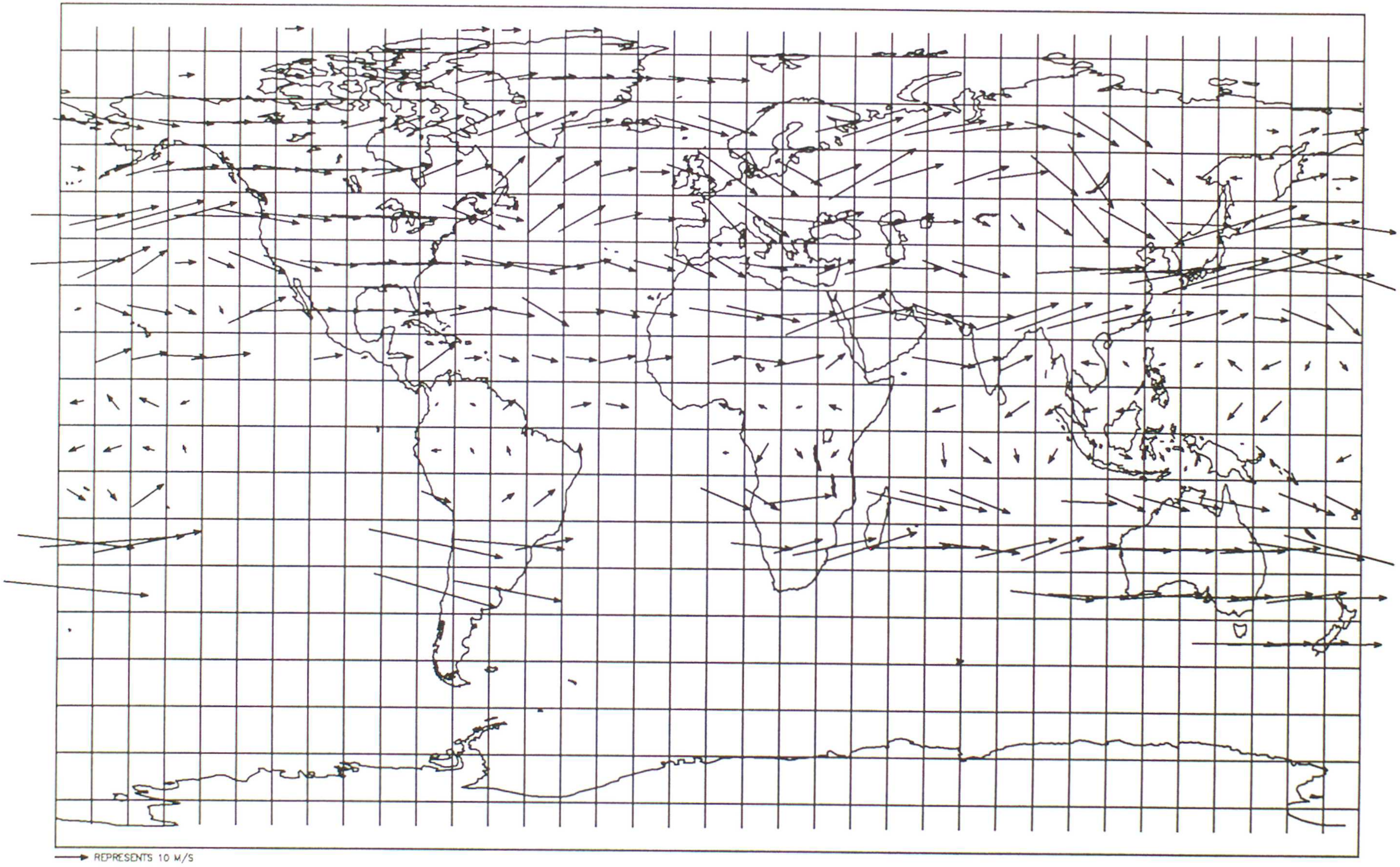
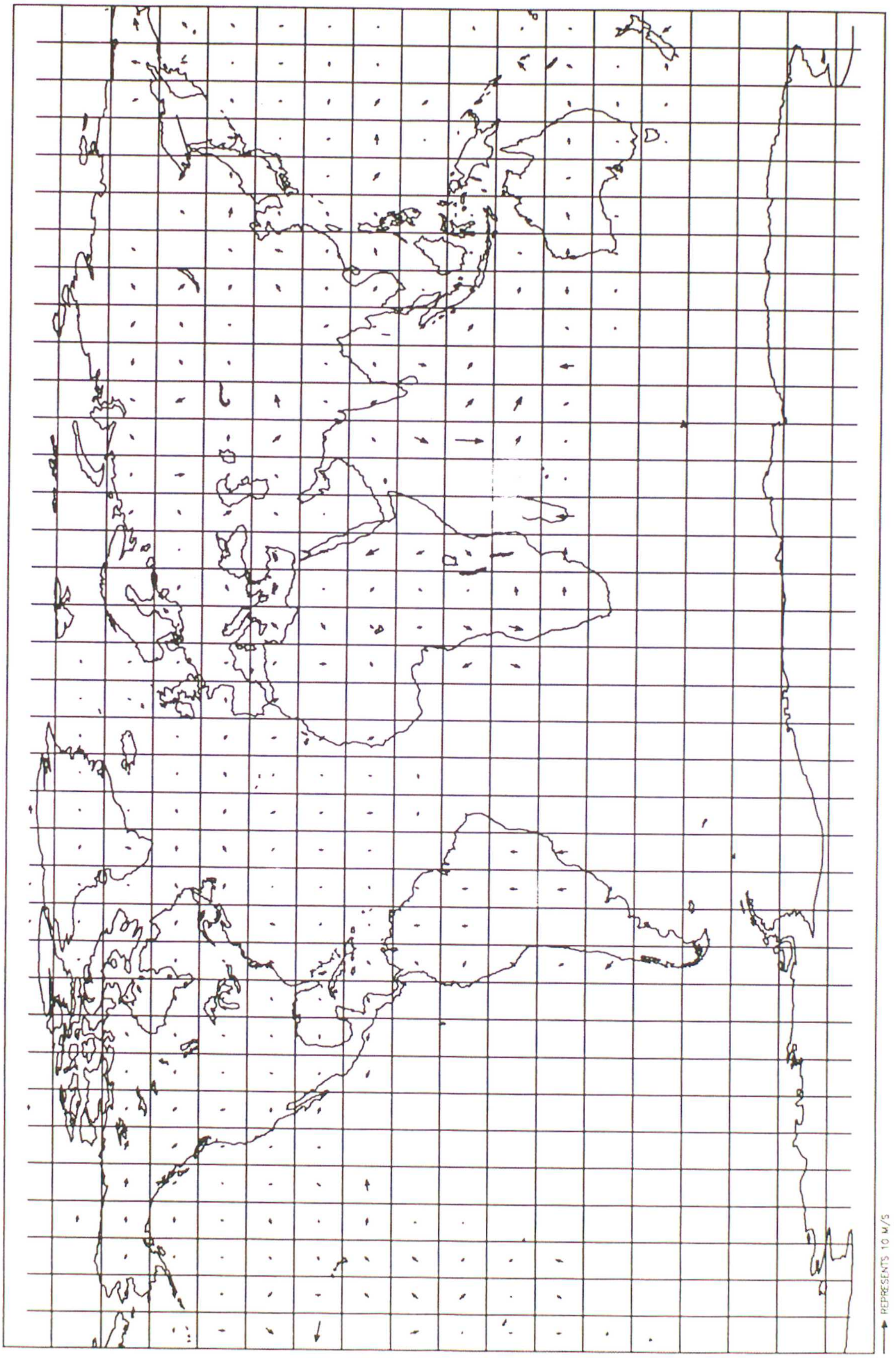
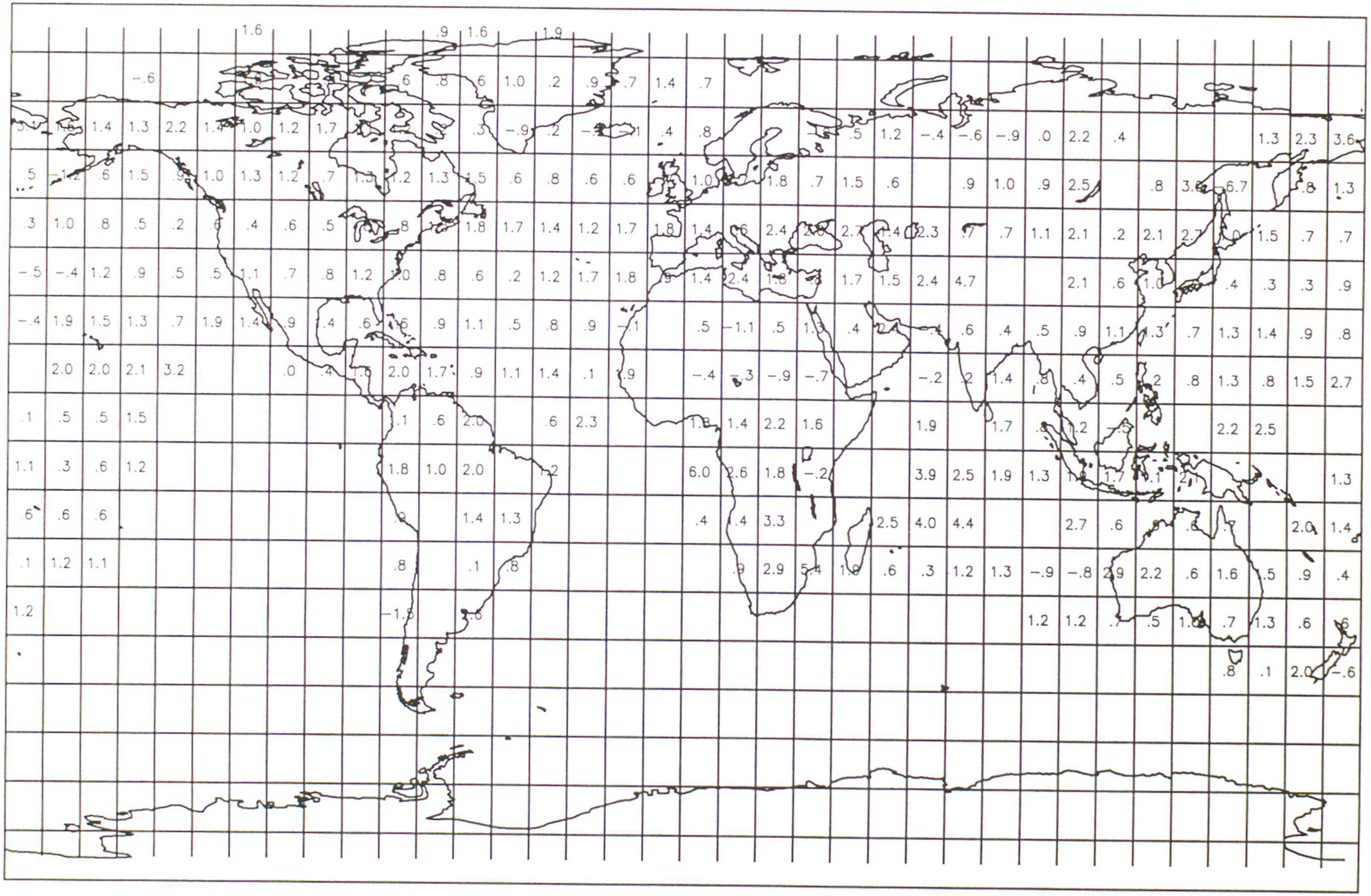


FIGURE 5

AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA
OCTOBER 1997
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
OCTOBER 1997
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


1.6 .9 1.6 1.9
-.6 .6 .8 .6 1.0 .2 .9 .7 1.4 .7
1.6 1.4 1.3 2.2 1.4 1.0 1.2 1.7 .3 -.9 .2 -.1 .4 .8 .5 1.2 -.4 -.6 -.9 .0 2.2 .4 1.3 2.3 3.6
.5 -1.2 .6 1.5 .9 1.0 1.3 1.2 .7 1.3 1.2 1.3 1.5 .6 .8 .6 .6 1.0 1.8 .7 1.5 .6 .9 1.0 .9 2.5 .8 3.6 6.7 .8 1.3
.3 1.0 .8 .5 .2 .6 .4 .6 .5 .8 1.8 1.7 1.4 1.2 1.7 1.8 1.4 .6 2.4 2.8 2.7 1.4 2.3 .7 .7 1.1 2.1 .2 2.1 2.7 .0 1.5 .7 .7
-.5 -.4 1.2 .9 .5 .5 1.1 .7 .8 1.2 1.0 .8 .6 .2 1.2 1.7 1.8 .9 1.4 2.4 1.8 .3 1.7 1.5 2.4 4.7 2.1 .6 1.0 .4 .3 .3 .9
-.4 1.9 1.5 1.3 .7 1.9 1.4 .9 .4 .6 .6 .9 1.1 .5 .8 .9 -.1 .5 -1.1 .5 1.3 .4 2.4 -.4 .6 .4 .5 .9 1.1 1.3 .7 1.3 1.4 .9 .8
2.0 2.0 2.1 3.2 .0 .4 1.6 2.0 1.7 .9 1.1 1.4 .1 1.9 -.4 -.3 -.9 -.7 -.2 .2 1.4 .8 .4 .5 .2 .8 1.3 .8 1.5 2.7
.1 .5 .5 1.5 .1 .6 2.0 .6 2.3 1.8 1.4 2.2 1.6 1.9 1.7 .8 1.2 2.2 2.5
1.1 .3 .6 1.2 1.8 1.0 2.0 1.2 6.0 2.6 1.8 -.2 3.9 2.5 1.9 1.3 1.2 1.7 1.1 2.1 1.3
.6 .6 .6 .9 1.4 1.3 .4 .4 3.3 2.5 4.0 4.4 2.7 .6 .8 .6 .7 2.0 1.4
.1 1.2 1.1 .8 .1 .8 .9 2.9 5.4 1.8 .6 .3 1.2 1.3 -.9 -.8 2.9 2.2 .6 1.6 .5 .9 .4
1.2 -1.5 2.0 1.2 1.2 .7 .5 1.8 .7 1.3 .6 .6
.8 .1 2.0 -.6

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
OCTOBER 1997
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

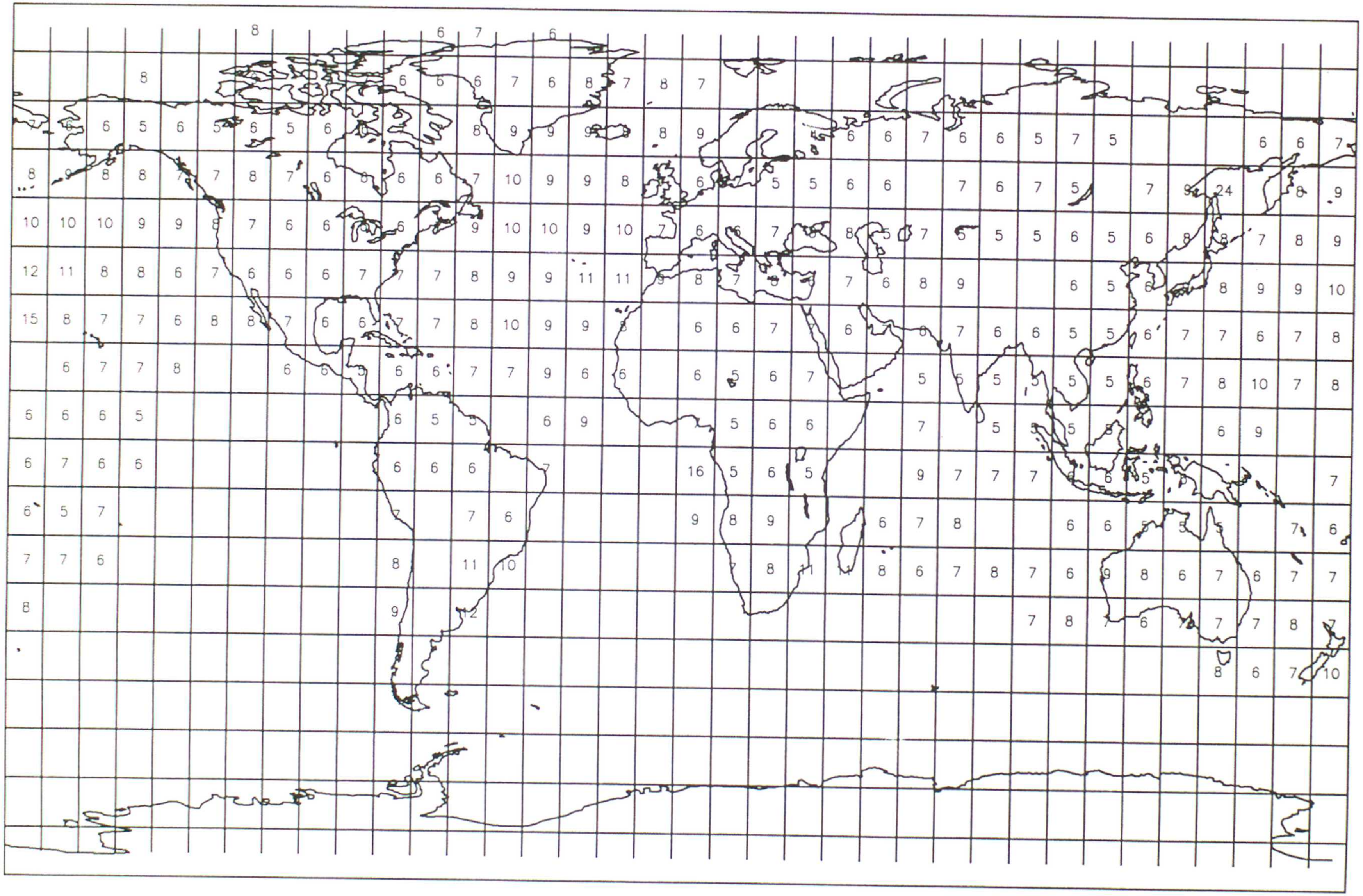


TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown duringperiod.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA : ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
ZDLP	12	Z	1000	7/ -22	10	3	6.3	90.8	91.0	9
17220	12	Z	250	38/ 27	29	2	58.3	89.5	106.8	10
42027	00	Z	50	34/ 75	16	0	135.3	-150.3	202.2	8
42027	12	Z	50	34/ 75	18	0	146.4	-139.1	201.9	7
42101	12	Z	150	30/ 76	17	0	97.7	71.4	121.0	6
42314	00	Z	200	27/ 95	20	0	72.8	-78.3	107.0	9
42314	12	Z	200	27/ 95	20	0	70.3	-78.8	105.7	5
42339	00	Z	250	26/ 73	25	1	87.8	0.0	87.8	7
42369	00	Z	70	27/ 81	21	1	119.5	-120.2	169.5	9
42369	12	Z	150	27/ 81	24	0	115.4	6.8	115.6	8
42397	00	Z	30	27/ 88	10	0	165.7	89.1	188.1	9
42397	12	Z	200	27/ 88	21	0	91.6	-10.0	92.1	8
42410	12	Z	70	26/ 92	10	0	34.6	-114.7	119.8	4
42492	00	Z	50	26/ 85	21	0	130.9	85.8	156.5	4
42492	12	Z	100	26/ 85	25	0	95.9	-81.8	126.0	6
42647	12	Z	100	23/ 73	16	1	83.0	95.6	126.6	6
42701	12	Z	70	23/ 85	13	0	150.0	129.0	197.8	8
42867	00	Z	50	21/ 79	20	0	156.6	147.7	215.3	8
42867	12	Z	50	21/ 79	22	0	143.6	51.9	152.7	7
42971	00	Z	250	20/ 86	28	0	56.4	-46.3	73.0	6
42971	12	Z	50	20/ 86	19	0	108.7	-104.0	150.5	6
43003	12	Z	200	19/ 73	21	3	60.4	115.5	130.4	7
43014	12	Z	150	20/ 75	9	2	94.6	-26.3	98.2	4
43041	00	Z	30	19/ 82	14	1	176.1	103.3	204.2	4
43041	12	Z	150	19/ 82	19	0	83.0	64.4	105.0	5
43128	00	Z	150	17/ 78	26	0	103.4	-38.9	110.5	9
43185	12	Z	100	16/ 81	25	0	102.6	73.6	126.3	6
43192	12	Z	100	15/ 74	12	1	128.1	59.4	141.2	7
43279	12	Z	150	13/ 80	29	0	78.3	72.7	106.9	6
43285	12	Z	150	13/ 75	18	0	77.0	93.4	121.1	6
43295	12	Z	70	13/ 78	14	0	111.9	119.7	163.8	5
43346	00	Z	50	11/ 80	20	0	91.1	-224.7	242.5	9
43353	12	Z	150	10/ 76	18	0	112.5	31.3	116.8	4
43369	12	Z	30	8/ 73	13	1	103.4	221.3	244.3	6
43371	00	Z	50	8/ 77	16	1	138.3	-175.3	223.3	8
43371	12	Z	50	8/ 77	21	0	121.4	-107.7	162.3	6
47058	00	Z	150	39/ 126	10	0	135.7	19.3	137.1	4
54497	00	Z	250	40/ 124	30	0	42.3	67.2	79.5	6
54497	12	Z	70	40/ 124	25	1	107.8	119.8	161.2	8
57749	00	Z	100	28/ 110	29	0	52.8	122.8	133.7	5
57957	00	Z	100	25/ 110	30	0	37.6	126.4	131.9	4
57972	12	Z	100	26/ 113	31	0	34.7	130.2	134.8	5
58606	00	Z	100	29/ 116	29	0	28.9	117.8	121.3	4
61902	12	Z	150	-8/ -14	20	1	51.9	125.7	136.0	7
62306	12	Z	30	31/ 27	7	5	84.4	268.7	281.7	10
89009	00	Z	250	-90/ 0	13	0	105.4	10.5	105.9	7
89022	12	Z	200	-75/ -27	5	24	58.4	-167.2	177.1	12
89542	00	Z	150	-68/ 46	30	0	44.9	113.6	122.2	6
89664	00	Z	150	-78/ 167	13	0	47.8	97.6	108.7	5
96237	00	Z	150	-2/ 106	22	0	109.0	-65.1	127.0	7

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – OCTOBER 1997 FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1367

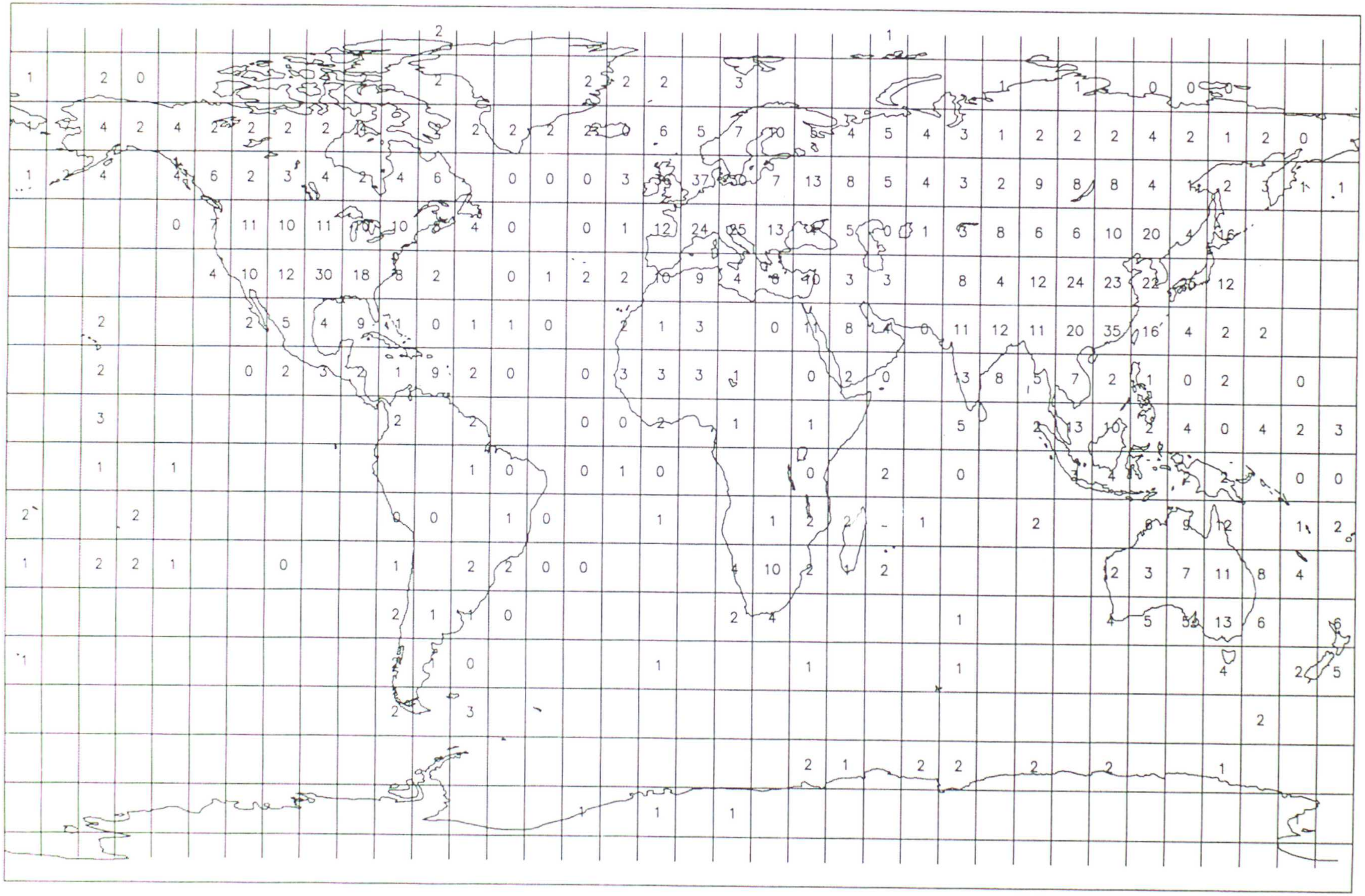

2 1
1 2 0 2 2 2 2 3 1 1 0 0 0
4 2 4 2 2 2 2 2 2 2 2 2 6 5 7 10 5 4 5 4 3 1 2 2 2 4 2 1 2 0
1 2 4 4 6 2 3 4 2 4 6 0 0 0 3 36 37 30 7 13 8 5 4 3 2 9 8 8 4 1 2 3 1 1
0 7 11 10 11 10 10 2 4 0 0 1 12 24 25 13 5 0 1 3 8 6 6 10 20 4 16
4 10 12 30 18 8 2 0 1 2 2 10 9 4 8 10 3 3 8 4 12 24 23 22 30 12
2 2 5 4 9 1 0 1 1 0 2 1 3 0 1 8 4 0 11 12 11 20 35 16 4 2 2
2 0 2 3 2 1 9 2 0 0 3 3 3 1 0 2 0 13 8 5 7 2 1 0 2 0
3 2 2 0 0 2 1 1 5 2 13 10 2 4 0 4 2 3
1 1 1 0 0 1 0 0 2 0 3 4 2 0 0
2 2 0 0 1 0 1 1 2 2 1 2 8 9 12 1 2
1 2 2 1 0 1 2 2 0 0 4 10 2 1 2 2 3 7 11 8 4
2 1 1 0 2 4 1 4 5 52 13 6 6
1 1 0 1 1 1 4 2 5
2 3 2
2 1 2 2 2 2 1
1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
68842	12	V	200	-34/ 26	11	0	9	-8.4	-2.6	16.1	2

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – OCTOBER 1997

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1149

FIGURE 9

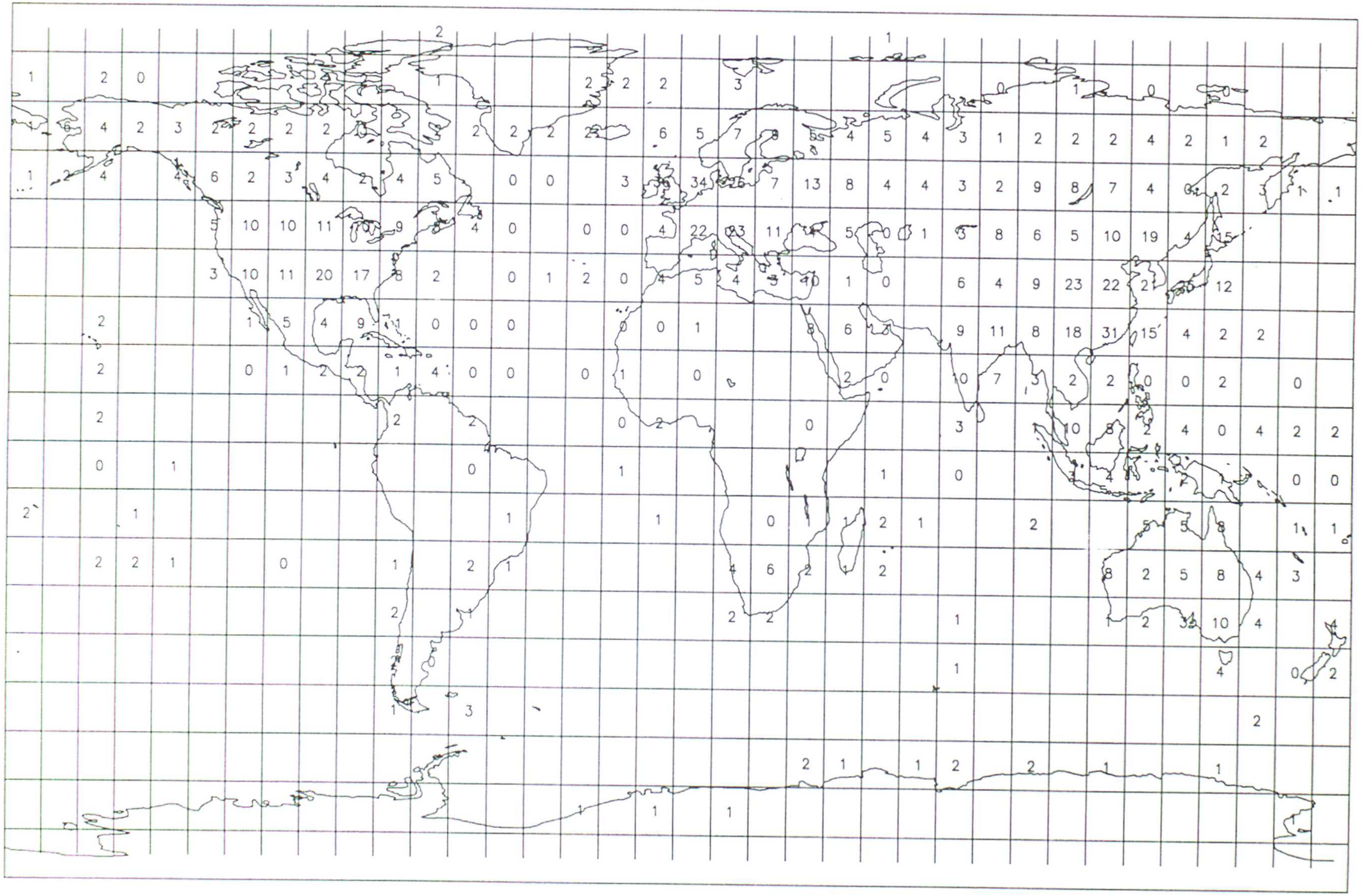

2 1
1 2 0 1 2 2 2 3 0 1 0
1 6 4 2 3 2 2 2 2 2 2 2 2 6 5 7 8 5 4 5 4 3 1 2 2 2 4 2 1 2
1 2 4 4 6 2 3 4 2 4 5 0 0 3 3 34 7 13 8 4 4 3 2 9 8 7 4 0 2 3 1 1
10 10 11 9 4 0 0 0 4 22 23 11 5 0 1 3 8 6 5 10 19 4 15
3 10 11 20 17 8 2 0 1 2 0 4 5 4 3 10 1 0 6 4 9 23 22 21 12
2 1 5 4 9 1 0 0 0 0 0 1 8 6 3 9 11 8 18 31 15 4 2 2
2 0 1 2 2 1 4 0 0 0 1 0 2 0 10 7 3 2 2 0 0 2 0
2 2 2 0 2 0 3 1 10 8 2 4 0 4 2 2
0 1 0 1 1 0 4 0 0
2 1 1 1 0 1 2 1 2 5 5 8 1 1
2 2 1 0 1 2 1 4 6 2 1 2 8 2 5 8 4 3
2 1 2 2 1 1 2 3 10 4 4
1 4 0 2
1 3 2
2 1 1 2 2 1 1
1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA

:NUM OBS $\geq$ 5, and
ABSOLUTE BIAS $\geq$ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
JBOA	00	DD	32/ 137	8	11.7	9.6	19.3
42339	00	DD	26/ 73	24	17.3	8.9	14.4
42339	12	DD	26/ 73	21	15.4	3.9	11.1
42369	00	DD	27/ 81	25	14.3	7.9	14.8
42369	12	DD	27/ 81	27	11.1	4.5	13.6
59134	00	DD	24/ 118	27	10.2	4.6	10.3
59280	12	DD	24/ 113	29	10.7	2.4	10.4
62337	12	DD	31/ 34	26	-20.9	2.6	13.5
76654	00	DD	19/-104	6	-11.4	7.3	27.9
91217	00	DD	14/ 145	17	-14.0	7.9	22.0
91217	12	DD	14/ 145	19	-12.0	10.0	25.8
91366	12	DD	9/ 168	19	11.9	4.4	19.5

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: October, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

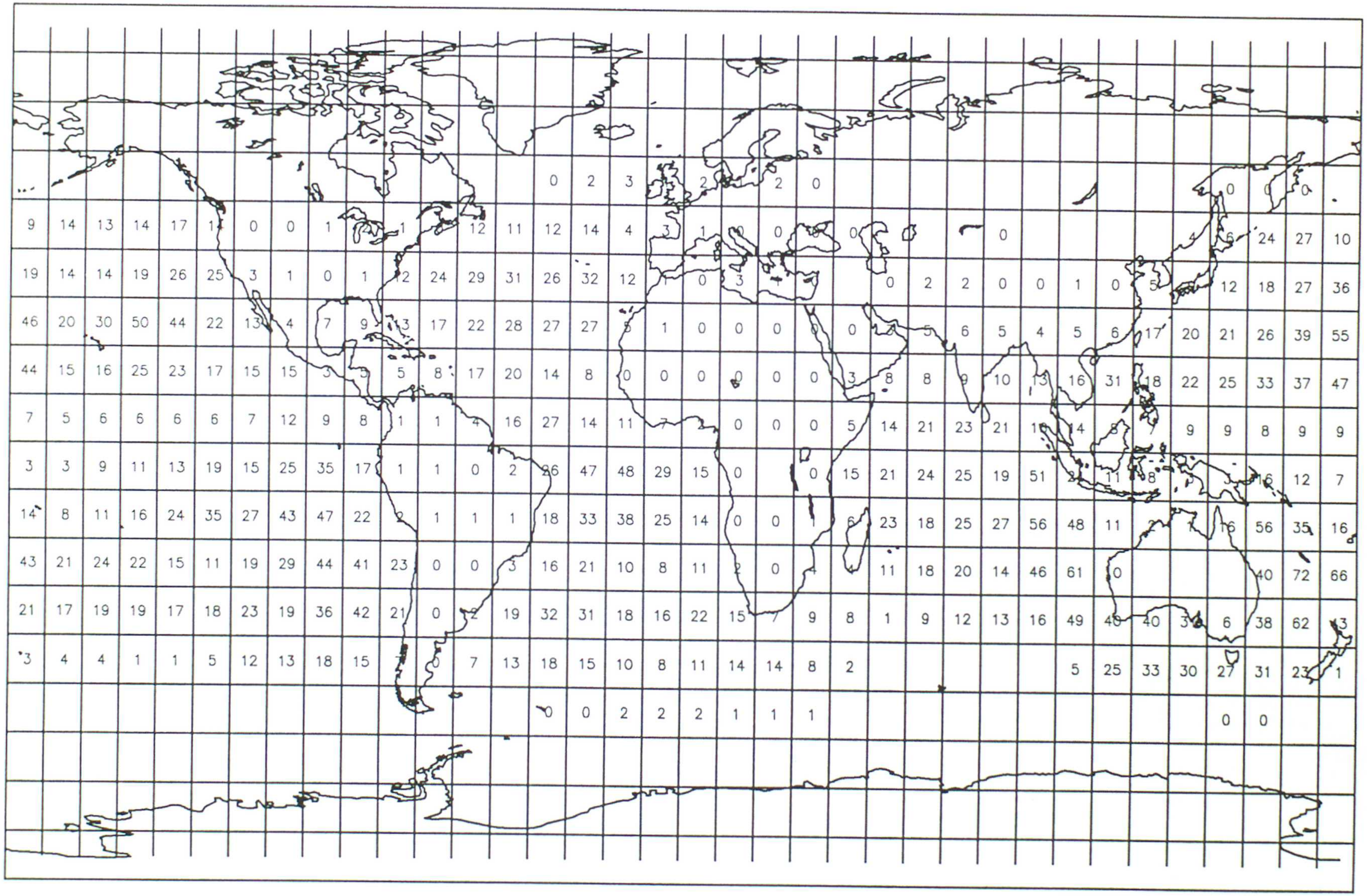
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

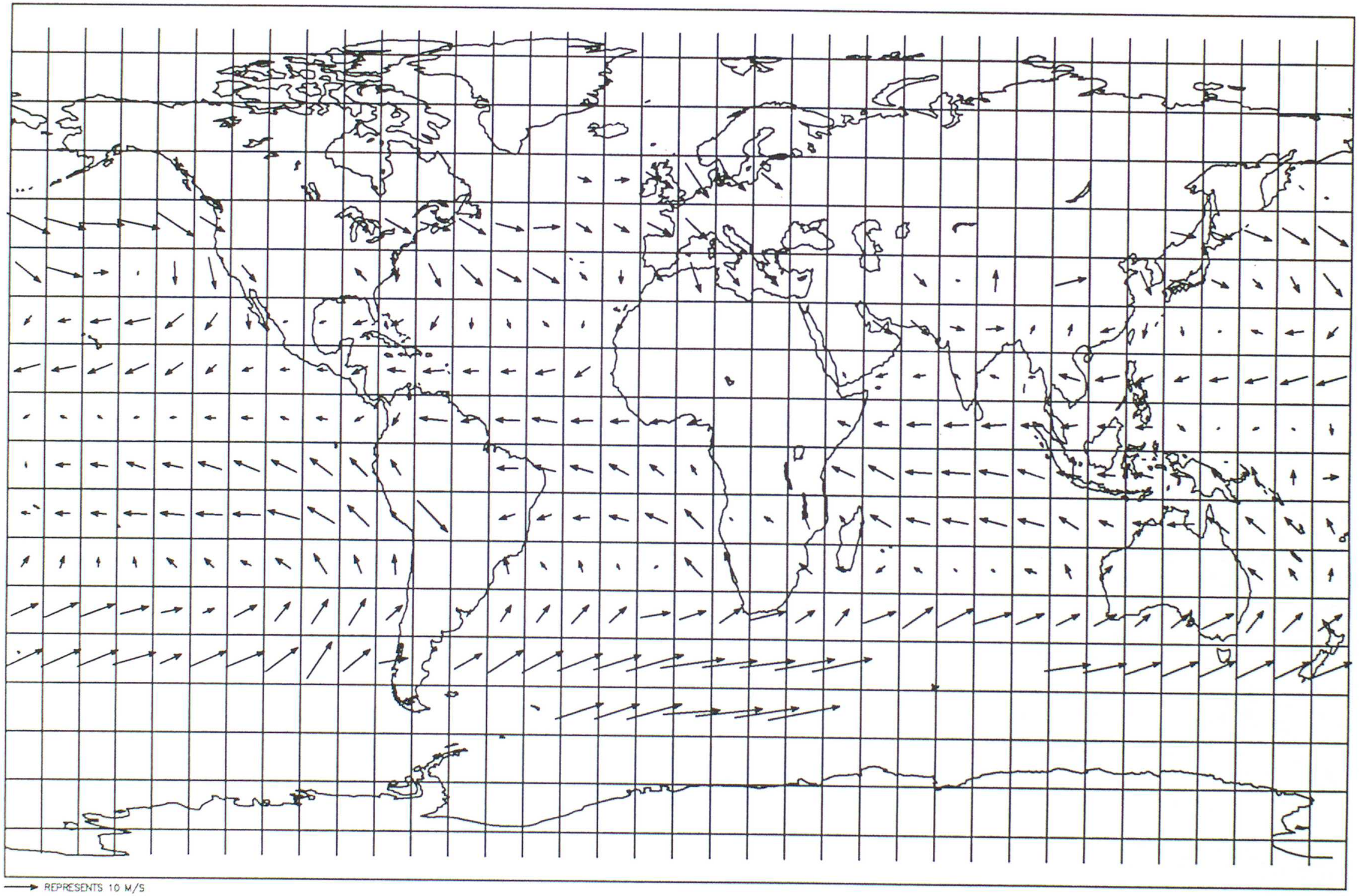
:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
OCTOBER 1997


0 2 3 2 2 0 0 0 0
9 14 13 14 17 1 0 0 1 1 12 11 12 14 4 3 1 0 0 0 0 0 4 6 24 27 10
19 14 14 19 26 25 3 1 0 1 12 24 29 31 26 32 12 1 0 3 0 2 2 0 0 1 0 5 12 18 27 36
46 20 30 50 44 22 13 4 7 9 13 17 22 28 27 27 5 1 0 0 0 0 0 3 5 6 5 4 5 6 17 20 21 26 39 55
44 15 16 25 23 17 15 15 3 3 5 8 17 20 14 8 0 0 0 0 0 0 3 8 8 9 10 13 16 31 18 22 25 33 37 47
7 5 6 6 6 6 7 12 9 8 1 1 4 16 27 14 11 7 2 0 0 0 5 14 21 23 21 1 14 8 7 9 9 8 9 9
3 3 9 11 13 19 15 25 35 17 1 1 0 2 26 47 48 29 15 0 0 15 21 24 25 19 51 2 11 8 16 12 7
14 8 11 16 24 35 27 43 47 22 2 1 1 1 18 33 38 25 14 0 0 1 6 23 18 25 27 56 48 11 2 1 6 56 35 16
43 21 24 22 15 11 19 29 44 41 23 0 0 3 16 21 10 8 11 2 0 4 4 11 18 20 14 46 61 0 40 72 66
21 17 19 19 17 18 23 19 36 42 21 0 2 19 32 31 18 16 22 15 7 9 8 1 9 12 13 16 49 40 40 36 6 38 62 43
3 4 4 1 1 5 12 13 18 15 7 0 7 13 18 15 10 8 11 14 14 8 2 5 25 33 30 27 31 23 1
0 0 2 2 2 1 1 1 0 0

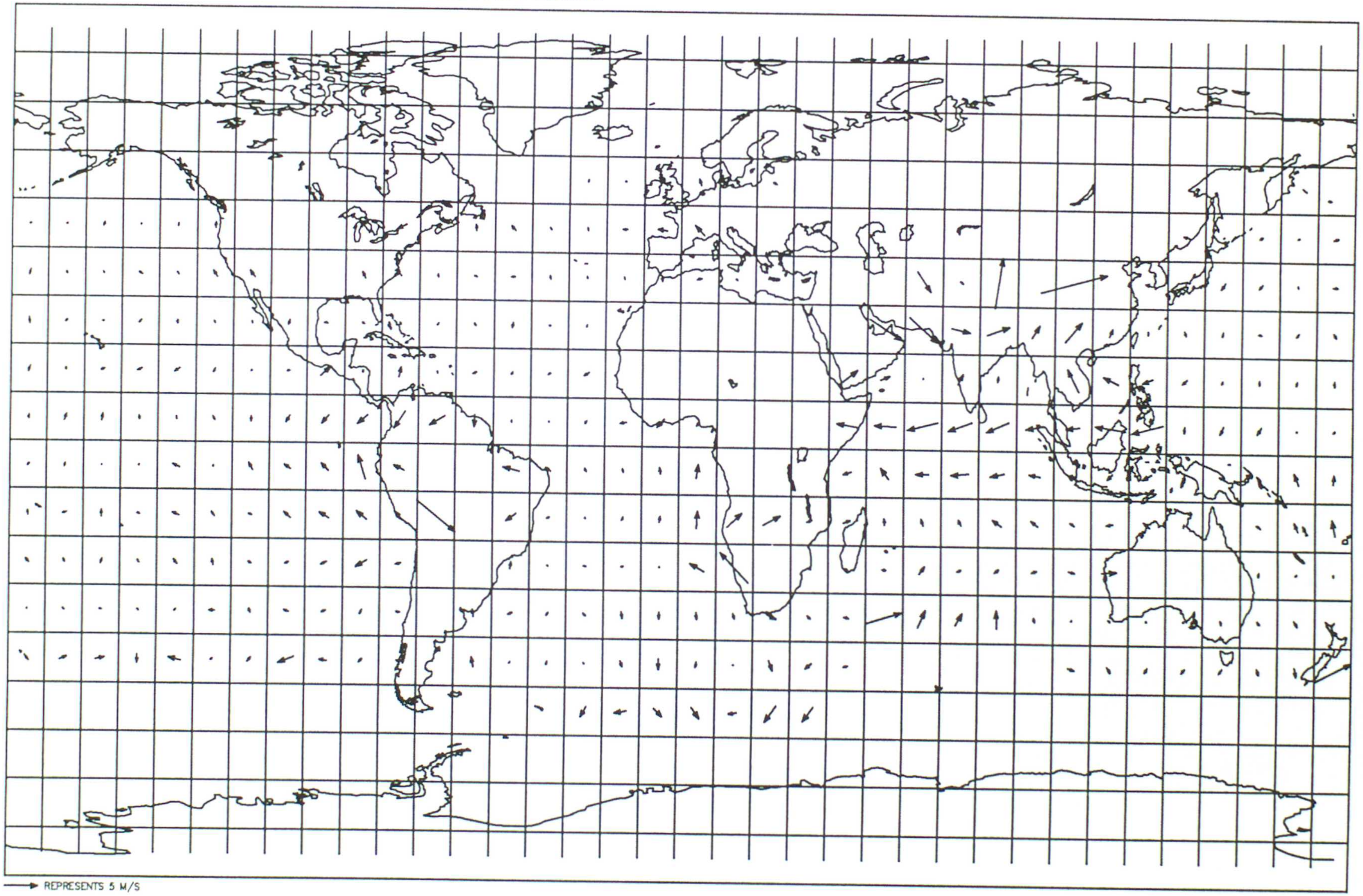
SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
OCTOBER 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11

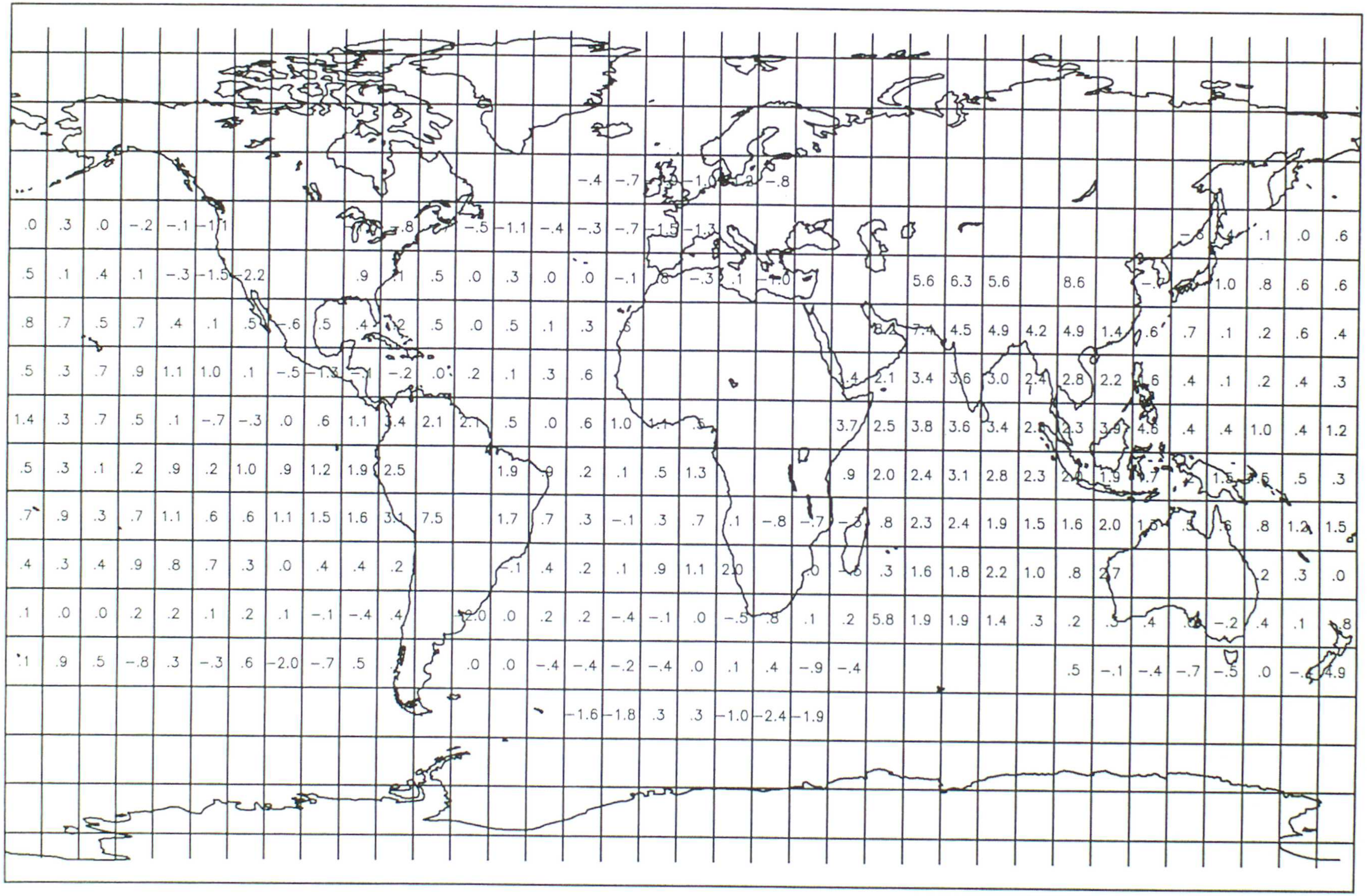

REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA
OCTOBER 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 12

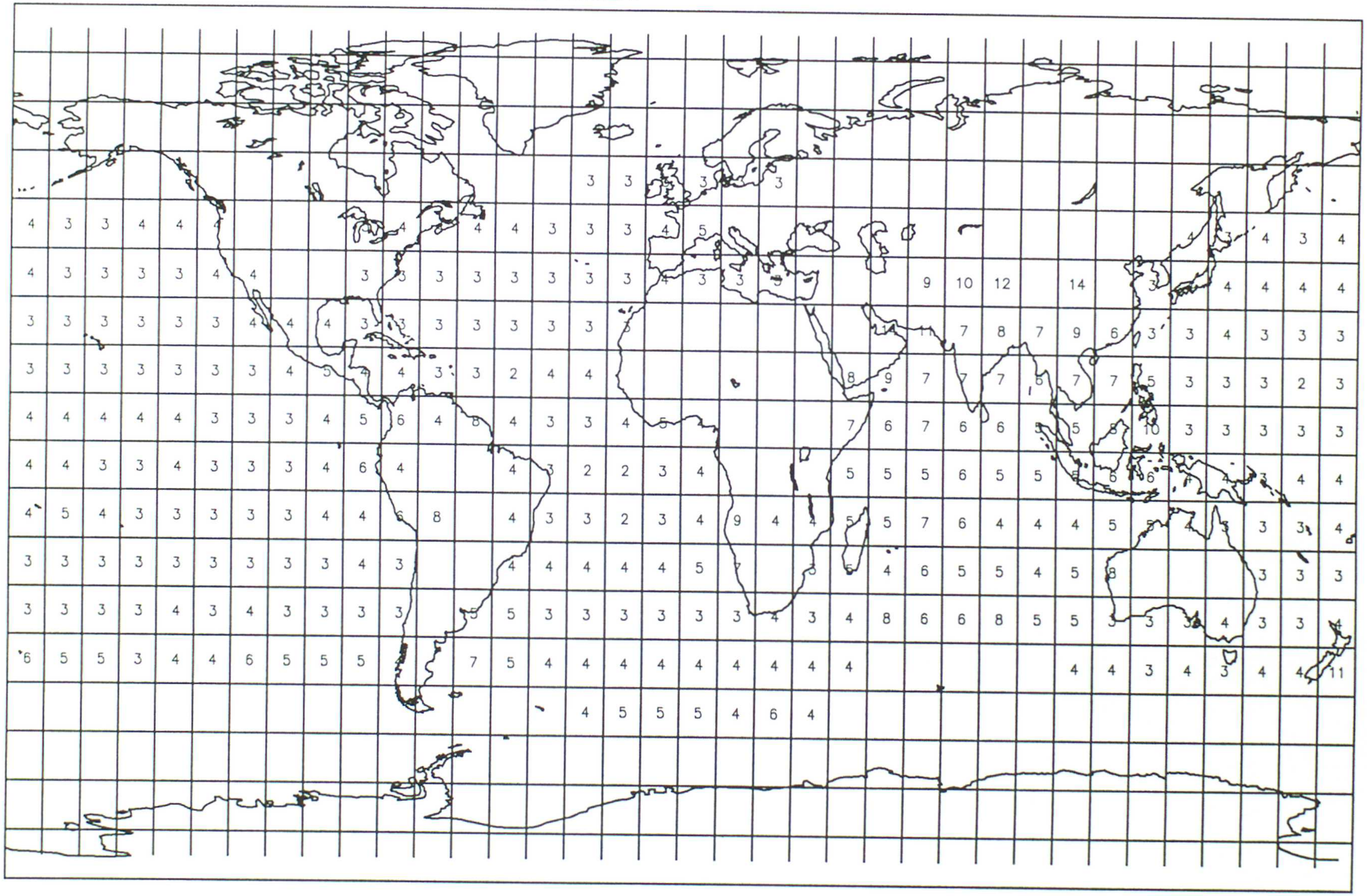


SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
OCTOBER 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

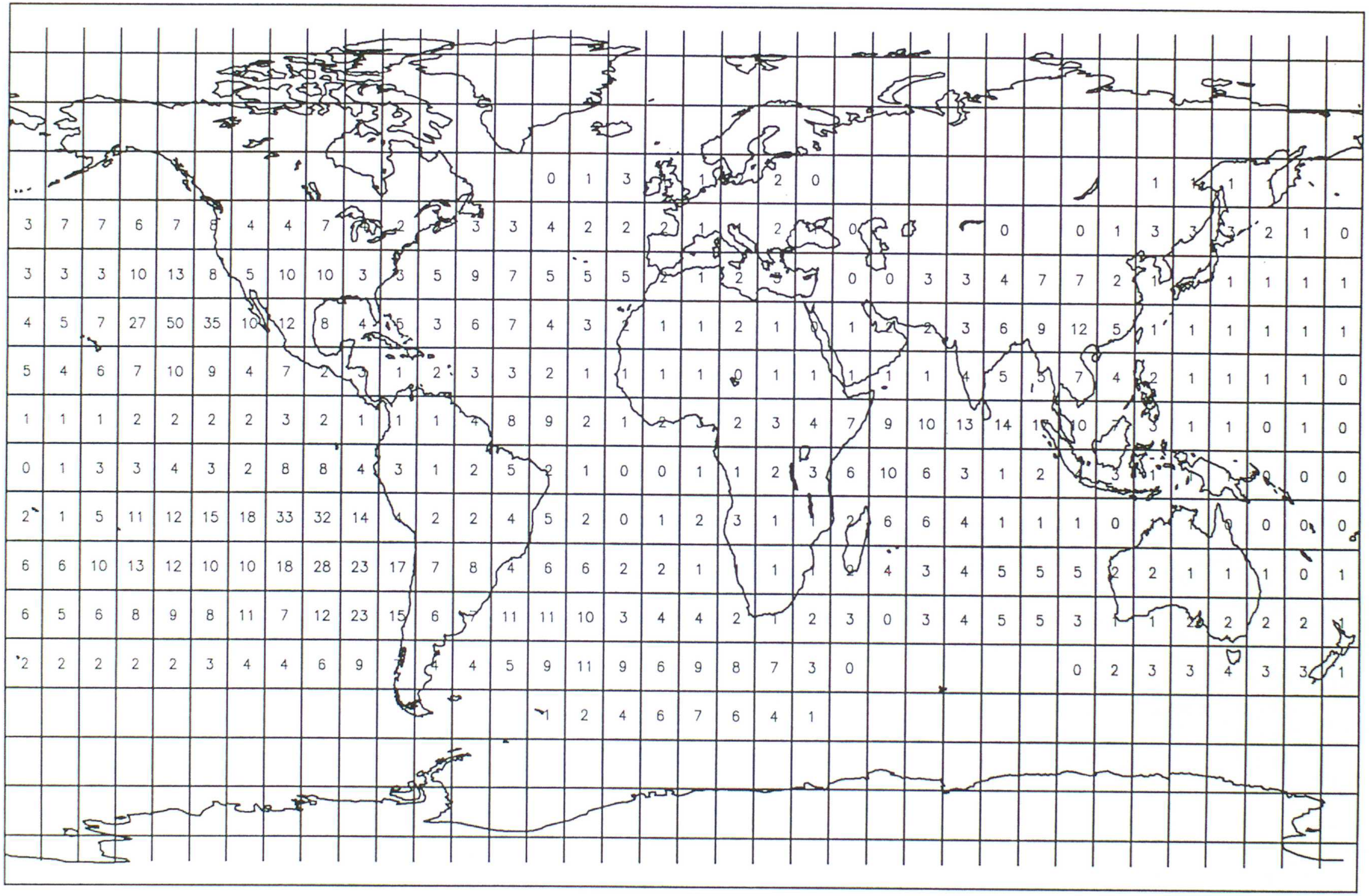


-.4 -.7 -1.0 .2 -.8
.0 .3 .0 -.2 -.1 -1.1 .8 -.5 -1.1 -.4 -.3 -.7 -1.5 -1.3 -.6 .1 .0 .6
.5 .1 .4 .1 -.3 -1.5 -2.2 .9 .1 .5 .0 .3 .0 .0 -.1 .8 -.3 .1 -1.0 5.6 6.3 5.6 8.6 -.1 1.0 .8 .6 .6
.8 .7 .5 .7 .4 .1 .5 -.6 .5 .4 .2 .5 .0 .5 .1 .3 .5 8.4 7.4 4.5 4.9 4.2 4.9 1.4 .6 .7 .1 .2 .6 .4
.5 .3 .7 .9 1.1 1.0 .1 -.5 -1.3 -.1 -.2 .0 .2 .1 .3 .6 .4 2.1 3.4 3.6 3.0 2.4 2.8 2.2 .6 .4 .1 .2 .4 .3
1.4 .3 .7 .5 .1 -.7 -.3 .0 .6 1.1 3.4 2.1 2.1 .5 .0 .6 1.0 1.1 .5 3.7 2.5 3.8 3.6 3.4 2.8 2.3 3.9 4.6 .4 .4 1.0 .4 1.2
.5 .3 .1 .2 .9 .2 1.0 .9 1.2 1.9 2.5 1.9 .9 .2 .1 .5 1.3 .9 2.0 2.4 3.1 2.8 2.3 2.0 1.9 .7 .2 1.5 .5 .5 .3
.7 .9 .3 .7 1.1 .6 .6 1.1 1.5 1.6 3.1 7.5 1.7 .7 .3 -.1 .3 .7 .1 -.8 -.7 -.3 .8 2.3 2.4 1.9 1.5 1.6 2.0 1.3 .3 .6 .8 1.2 1.5
.4 .3 .4 .9 .8 .7 .3 .0 .4 .4 .2 .1 .4 .2 .1 .9 1.1 2.0 .0 -.5 .3 1.6 1.8 2.2 1.0 .8 2.7 .2 .3 .0
.1 .0 .0 .2 .2 .1 .2 .1 -.1 -.4 .4 -2.0 .0 .2 .2 -.4 -.1 .0 -.5 .8 .1 .2 5.8 1.9 1.9 1.4 .3 .2 .3 .4 .6 -.2 .4 .1 .8
.1 .9 .5 -.8 .3 -.3 .6 -2.0 -.7 .5 .0 .0 -.4 -.4 -.2 -.4 .0 .1 .4 -.9 -.4 .5 -.1 -.4 -.7 -.5 .0 -.4 4.9
-1.6 -1.8 .3 .3 -1.0 -2.4 -1.9

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
OCTOBER 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

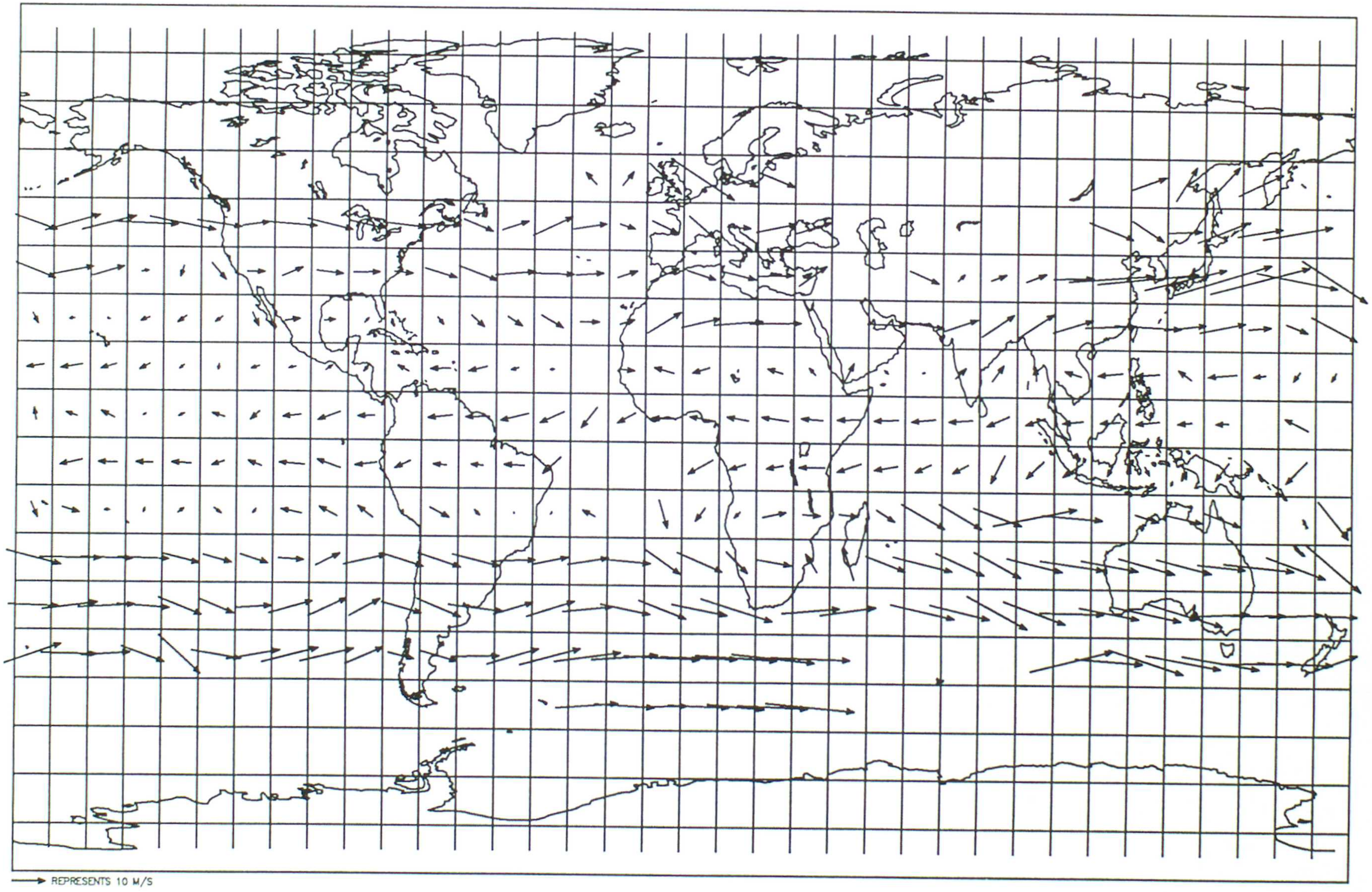


AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
OCTOBER 1997


0 1 3 1 2 0 1 1 1
3 7 7 6 7 8 4 4 7 4 2 3 3 4 2 2 2 1 1 2 1 0 0 0 1 3 3 3 2 1 0
3 3 3 10 13 8 5 10 10 3 3 5 9 7 5 5 5 2 1 2 5 0 0 3 3 4 7 7 2 1 1 1 1 1
4 5 7 27 50 35 10 12 8 4 5 3 6 7 4 3 2 1 1 2 1 0 1 2 2 3 6 9 12 5 1 1 1 1 1 1
5 4 6 7 10 9 4 7 2 3 1 2 3 3 2 1 1 1 1 0 1 1 1 1 1 4 5 5 7 4 2 1 1 1 1 0
1 1 1 2 2 2 2 3 2 1 1 1 4 8 9 2 1 2 3 2 3 4 7 9 10 13 14 15 10 7 3 1 1 0 1 0
0 1 3 3 4 3 2 8 8 4 3 1 2 5 2 1 0 0 1 1 2 3 6 10 6 3 1 2 3 1 1 0 0 0
2 1 5 11 12 15 18 33 32 14 4 2 2 4 5 2 0 1 2 3 1 1 2 6 6 4 1 1 1 0 1 1 0 0 0 0
6 6 10 13 12 10 10 18 28 23 17 7 8 4 6 6 2 2 1 1 1 2 4 3 4 5 5 5 2 2 1 1 1 0 1
6 5 6 8 9 8 11 7 12 23 15 6 7 11 11 10 3 4 4 2 1 2 3 0 3 4 5 5 3 1 1 2 2 2 2 1
2 2 2 2 2 3 4 4 6 9 7 4 4 5 9 11 9 6 9 8 7 3 0 0 2 3 3 4 3 3 1
1 2 4 6 7 6 4 1

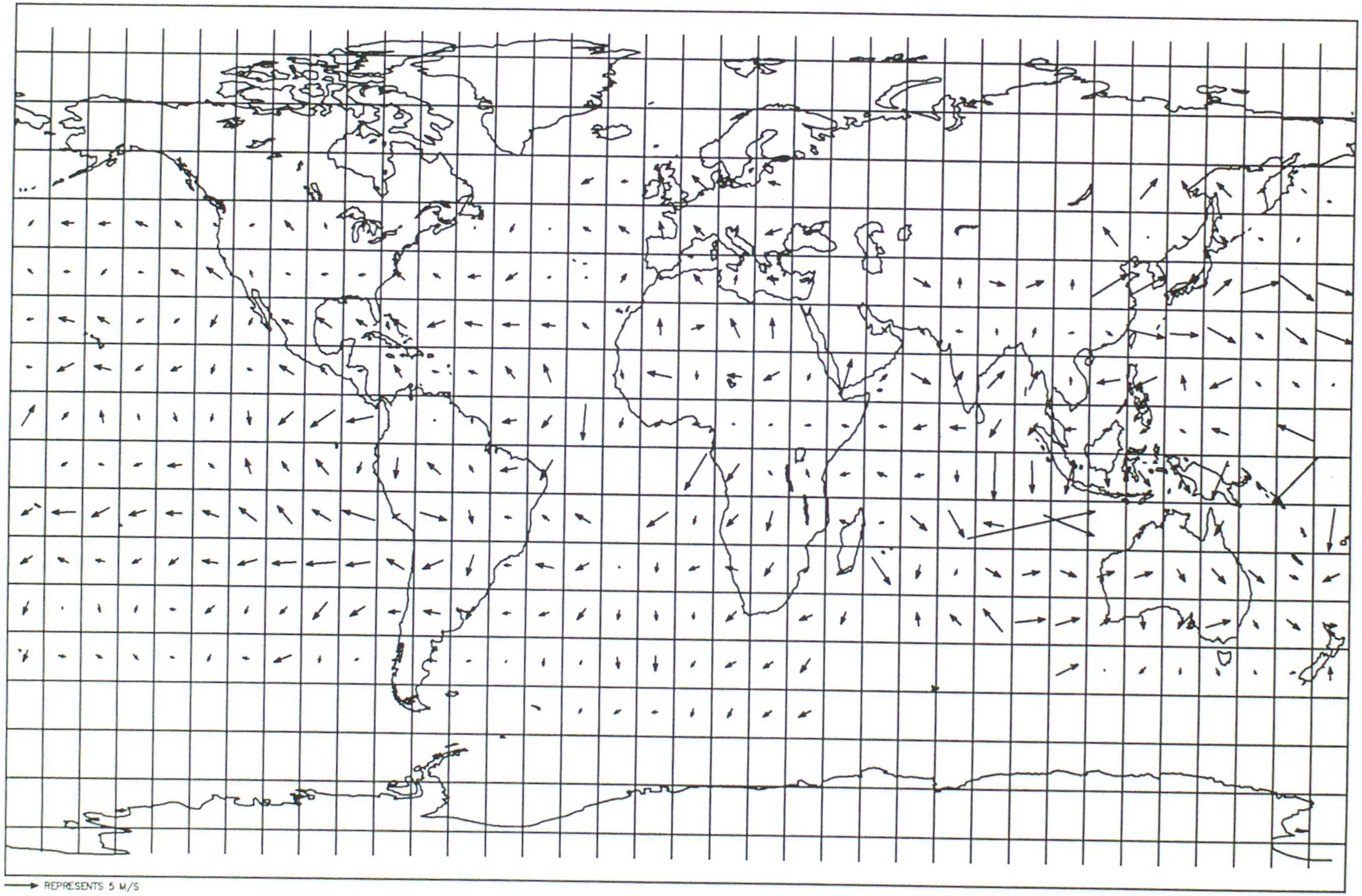
SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
OCTOBER 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16

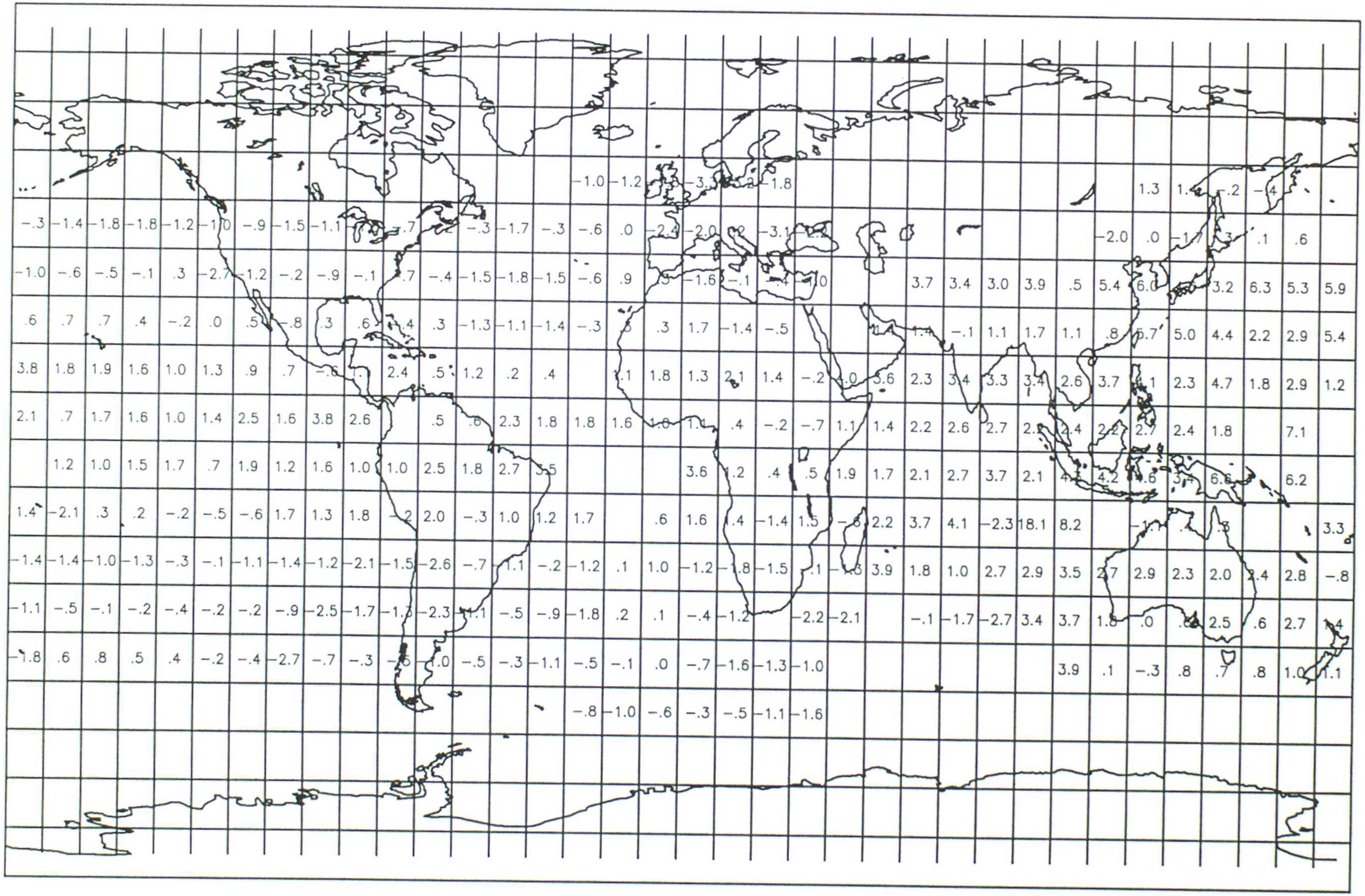

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA
OCTOBER 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

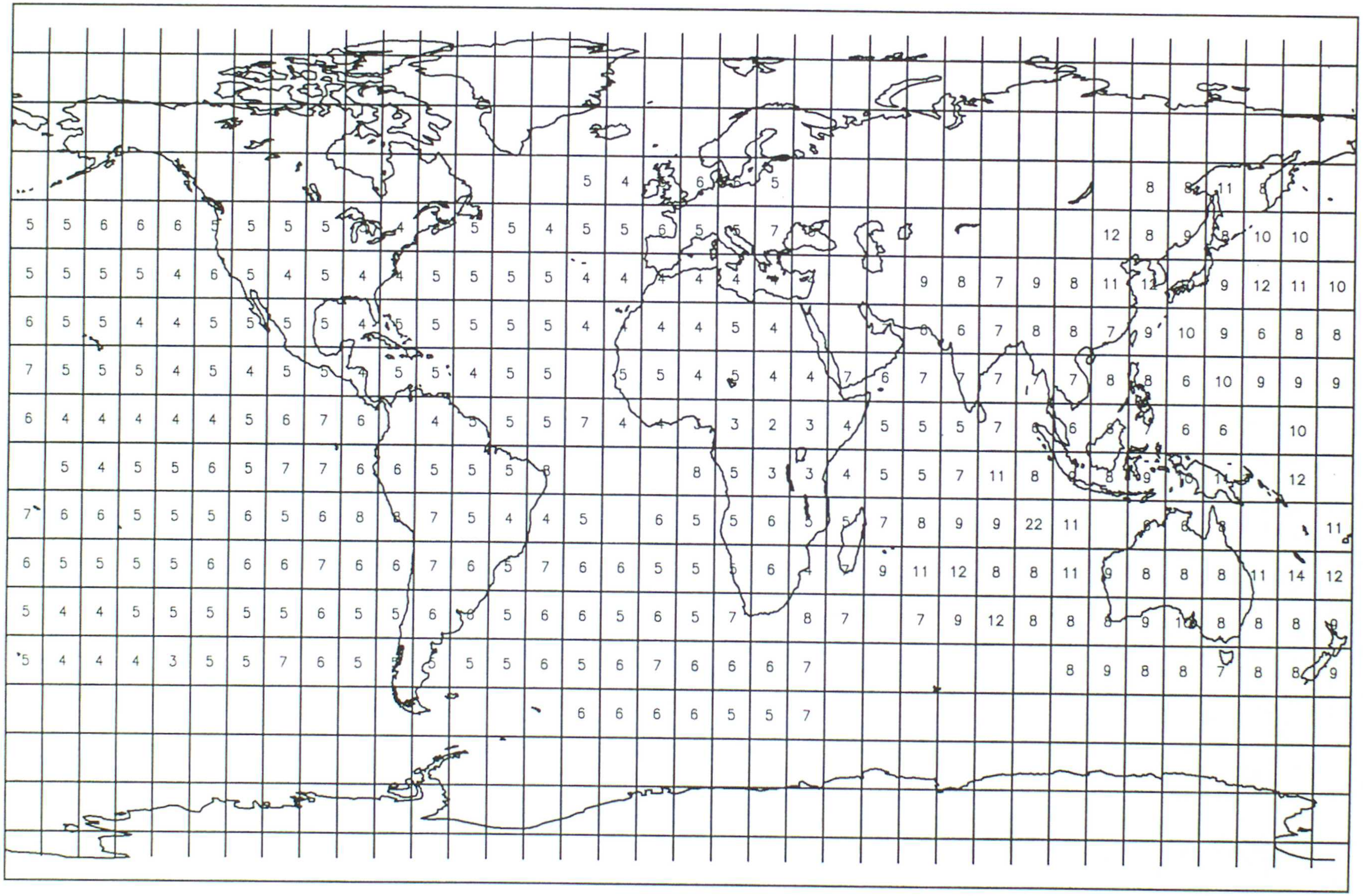
FIGURE 17



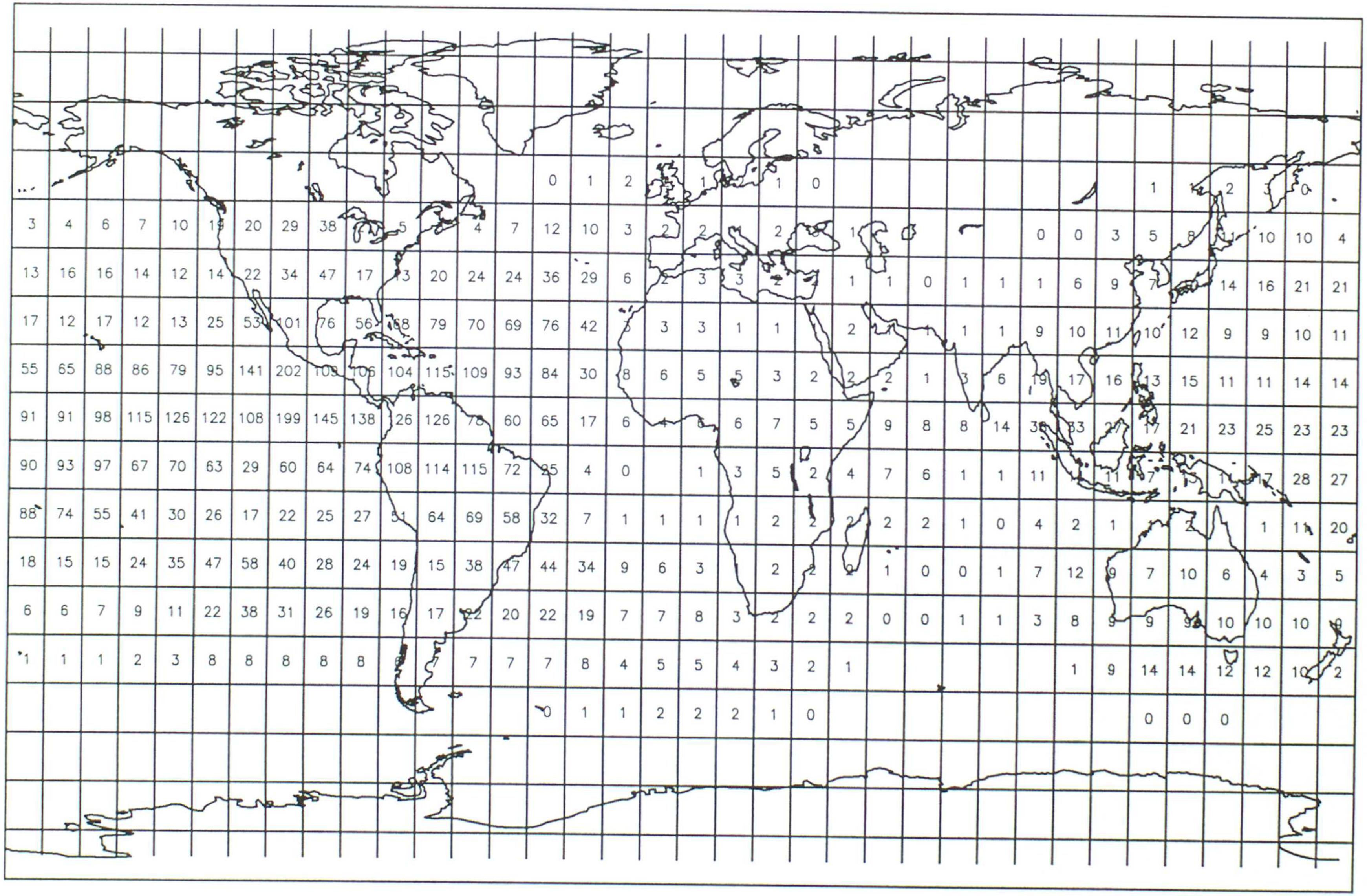
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
OCTOBER 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-1.0 -1.2 -3.3 .2 -1.8 1.3 1.4 -.2 -.4
-.3 -1.4 -1.8 -1.8 -1.2 -1.0 -.9 -1.5 -1.1 -.7 -.2 -.3 -1.7 -.3 -.6 .0 -2.4 -2.0 .2 -3.1 -2.2 -2.0 .0 -1.7 .3 .1 .6
-1.0 -.6 -.5 -.1 .3 -2.7 -1.2 -.2 -.9 -.1 .7 -.4 -1.5 -1.8 -1.5 -.6 .9 .3 -1.6 -.1 -.4 -1.0 3.7 3.4 3.0 3.9 .5 5.4 6.0 3.2 6.3 5.3 5.9
.6 .7 .7 .4 -.2 .0 .5 -.8 .3 .6 -.4 .3 -1.3 -1.1 -1.4 -.3 .3 .3 1.7 -1.4 -.5 1.4 1.4 -.1 1.1 1.7 1.1 .8 5.7 5.0 4.4 2.2 2.9 5.4
3.8 1.8 1.9 1.6 1.0 1.3 .9 .7 -.6 1.1 2.4 .5 1.2 .2 .4 1.1 1.8 1.3 2.1 1.4 -.2 1.0 3.6 2.3 3.4 3.3 3.4 2.6 3.7 4.1 2.3 4.7 1.8 2.9 1.2
2.1 .7 1.7 1.6 1.0 1.4 2.5 1.6 3.8 2.6 .5 .6 2.3 1.8 1.8 1.6 1.0 1.1 .4 -.2 -.7 1.1 1.4 2.2 2.6 2.7 2.5 2.4 2.2 2.7 2.4 1.8 7.1
1.2 1.0 1.5 1.7 .7 1.9 1.2 1.6 1.0 1.0 2.5 1.8 2.7 3.5 3.6 1.2 .4 .5 1.9 1.7 2.1 2.7 3.7 2.1 4.3 4.2 4.6 3.4 6.6 6.2
1.4 -2.1 .3 .2 -.2 -.5 -.6 1.7 1.3 1.8 -.2 2.0 -.3 1.0 1.2 1.7 .6 1.6 1.4 -1.4 1.5 -.8 2.2 3.7 4.1 -2.3 18.1 8.2 -1.1 .4 .3 3.3
-1.4 -1.4 -1.0 -1.3 -.3 -.1 -1.1 -1.4 -1.2 -2.1 -1.5 -2.6 -.7 -1.1 -.2 -1.2 .1 1.0 -1.2 -1.8 -1.5 -.1 -1.3 3.9 1.8 1.0 2.7 2.9 3.5 2.7 2.9 2.3 2.0 2.4 2.8 -.8
-1.1 -.5 -.1 -.2 -.4 -.2 -.2 -.9 -2.5 -1.7 -1.3 -2.3 -1.1 -.5 -.9 -1.8 .2 .1 -.4 -1.2 -2.2 -2.1 -.1 -1.7 -2.7 3.4 3.7 1.8 .0 .6 2.5 .6 2.7 1.4
-1.8 .6 .8 .5 .4 -.2 -.4 -2.7 -.7 -.3 -.6 -1.0 -.5 -.3 -1.1 -.5 -.1 .0 -.7 -1.6 -1.3 -1.0 3.9 .1 -.3 .8 .7 .8 1.0 1.1
-.8 -1.0 -.6 -.3 -.5 -1.1 -1.6

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
OCTOBER 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

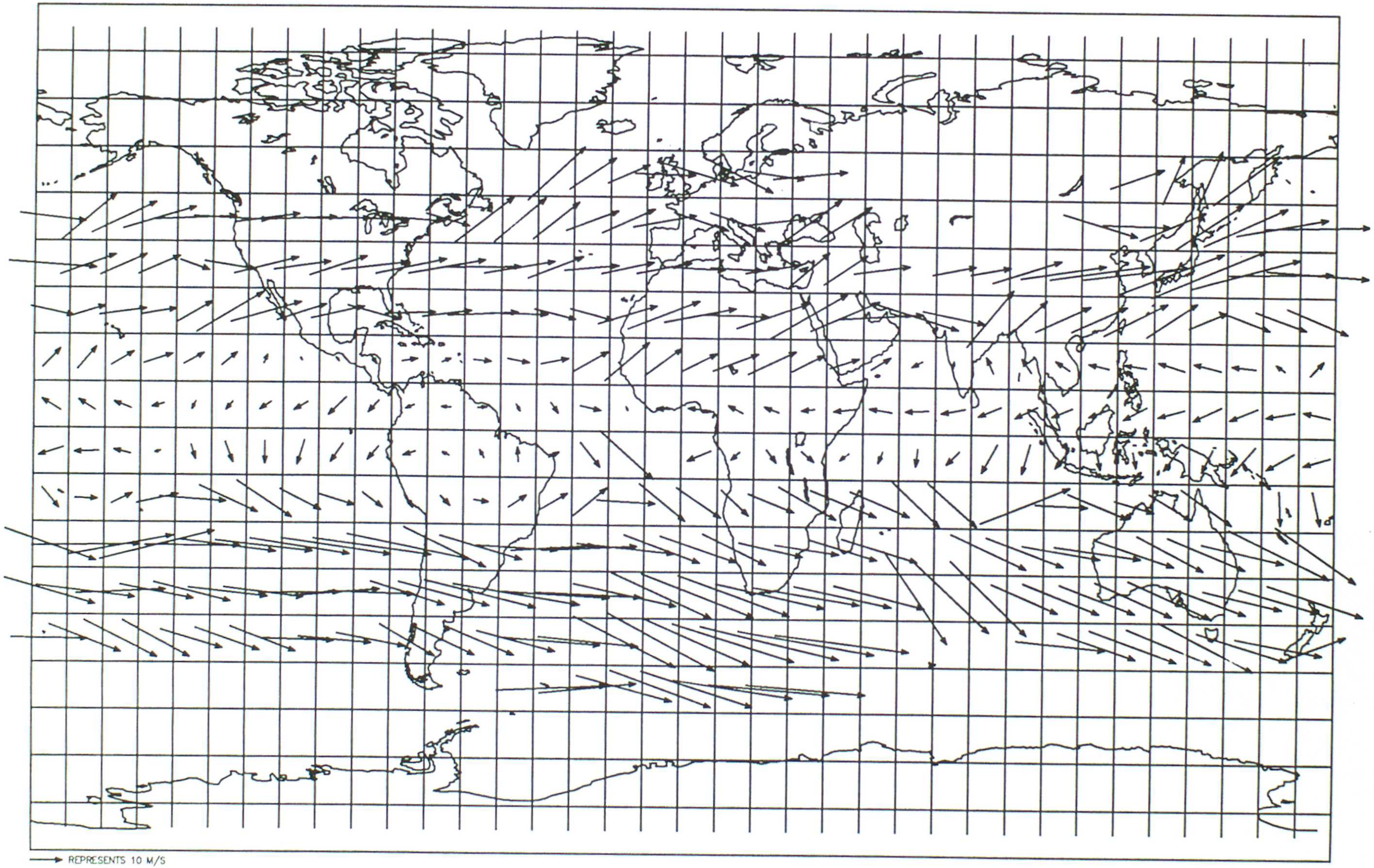

5 4 6 5 5 8 8 11 8
5 5 6 6 6 5 5 5 5 4 5 5 4 5 5 6 5 5 7 6 12 8 9 8 10 10
5 5 5 5 4 6 5 4 5 4 4 5 5 5 5 4 4 4 4 4 9 8 7 9 8 11 12 9 12 11 10
6 5 5 4 4 5 5 5 5 4 5 5 5 5 5 4 4 4 4 5 4 7 6 6 7 8 8 7 9 10 9 6 8 8
7 5 5 5 4 5 4 5 5 4 5 5 4 5 5 5 5 4 5 4 4 7 6 7 7 7 7 7 8 8 6 10 9 9 9
6 4 4 4 4 4 5 6 7 6 4 5 5 5 7 4 4 3 2 3 4 5 5 5 7 6 6 8 6 6 10
5 4 5 5 6 5 7 7 6 6 5 5 5 8 8 5 3 3 4 5 5 7 11 8 6 8 9 10 11 12
7 6 6 5 5 5 6 5 6 8 8 7 5 4 4 5 6 5 5 6 5 5 7 8 9 9 22 11 6 6 8 11
6 5 5 5 5 6 6 6 7 6 6 7 6 5 7 6 6 5 5 5 6 4 7 9 11 12 8 8 11 9 8 8 8 11 14 12
5 4 4 5 5 5 5 5 6 5 5 6 6 5 6 6 5 6 5 7 8 7 7 9 12 8 8 8 9 10 8 8 8 9
5 4 4 4 3 5 5 7 6 5 5 5 5 5 6 5 6 7 6 6 6 7 8 9 8 8 7 8 8 9
6 6 6 6 5 5 7

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
OCTOBER 1997


0 1 2 1 1 0 1 1 2 3 0
3 4 6 7 10 19 20 29 38 5 4 7 12 10 3 2 2 2 1 0 0 3 5 8 11 10 10 4
13 16 16 14 12 14 22 34 47 17 13 20 24 24 36 29 6 2 3 3 2 2 1 1 0 1 1 1 6 9 7 14 16 21 21
17 12 17 12 13 25 53 101 76 56 68 79 70 69 76 42 3 3 3 1 1 2 1 1 1 1 9 10 11 10 12 9 9 10 11
55 65 88 86 79 95 141 202 103 106 104 115 109 93 84 30 8 6 5 5 3 2 2 2 1 3 6 19 17 16 13 15 11 11 14 14
91 91 98 115 126 122 108 199 145 138 126 126 78 60 65 17 6 4 6 6 7 5 5 9 8 8 14 38 33 27 17 21 23 25 23 23
90 93 97 67 70 63 29 60 64 74 108 114 115 72 25 4 0 1 3 5 2 4 7 6 1 1 11 11 7 13 1 17 28 27
88 74 55 41 30 26 17 22 25 27 51 64 69 58 32 7 1 1 1 1 2 2 2 2 2 1 0 4 2 1 1 2 1 11 20
18 15 15 24 35 47 58 40 28 24 19 15 38 47 44 34 9 6 3 2 2 2 1 0 0 1 7 12 9 7 10 6 4 3 5
6 6 7 9 11 22 38 31 26 19 16 17 22 20 22 19 7 7 8 3 2 2 2 0 0 1 1 3 8 9 9 9 10 10 10 9
1 1 1 2 3 8 8 8 8 8 8 7 7 7 7 8 4 5 5 4 3 2 1 1 9 14 14 12 12 10 2
0 1 1 2 2 2 1 0 0 0 0

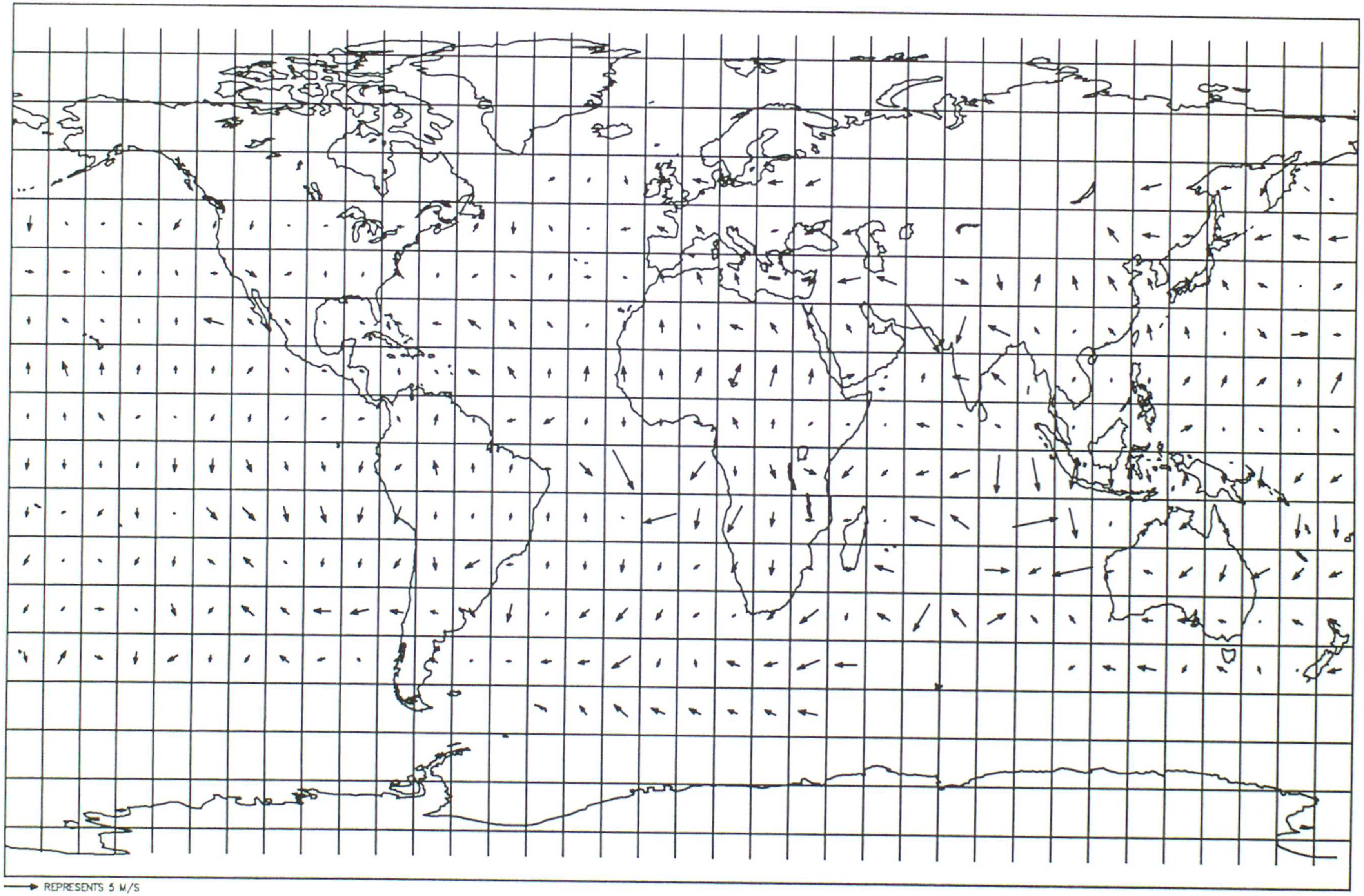
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
OCTOBER 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21

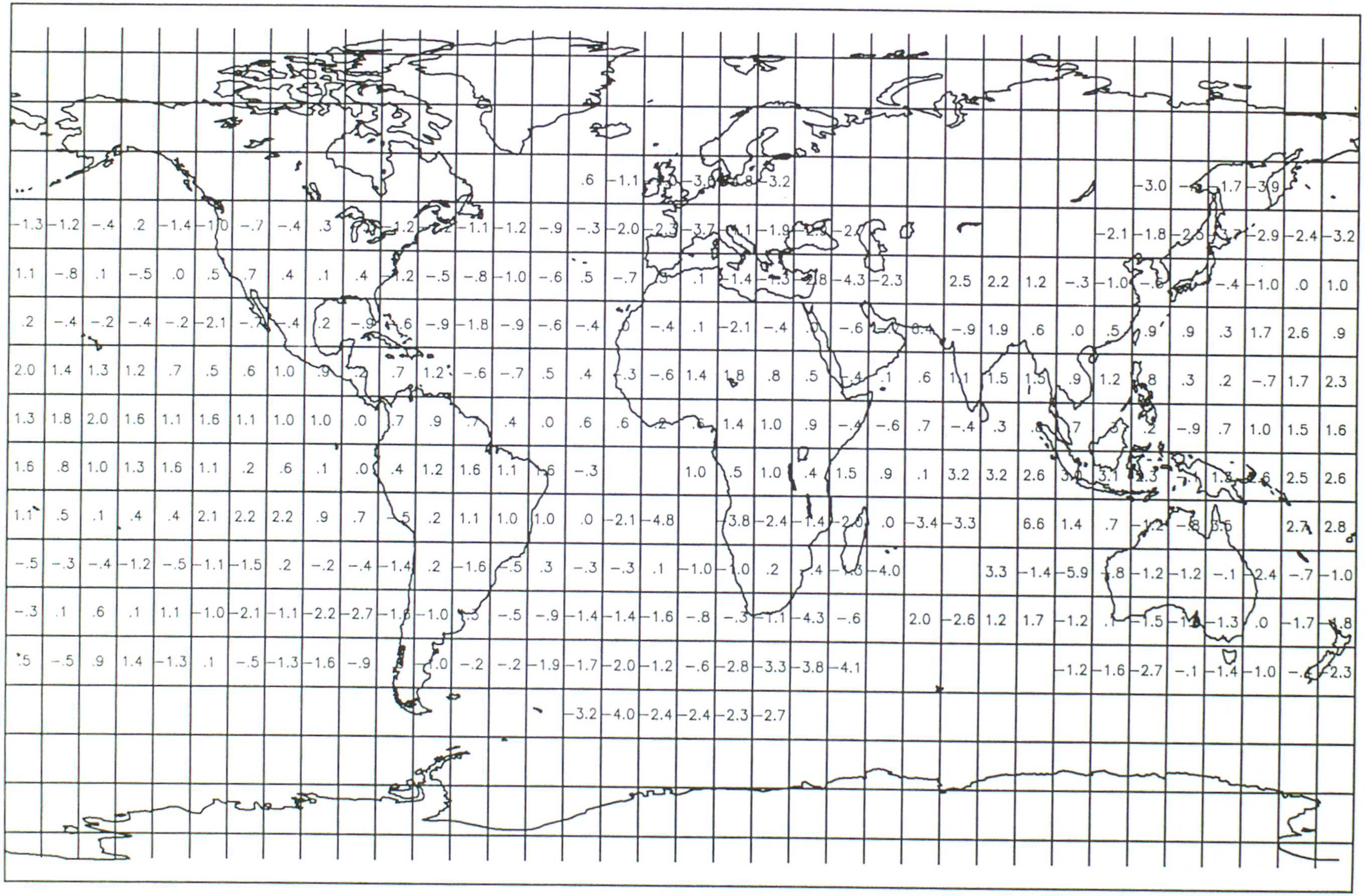

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA
OCTOBER 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

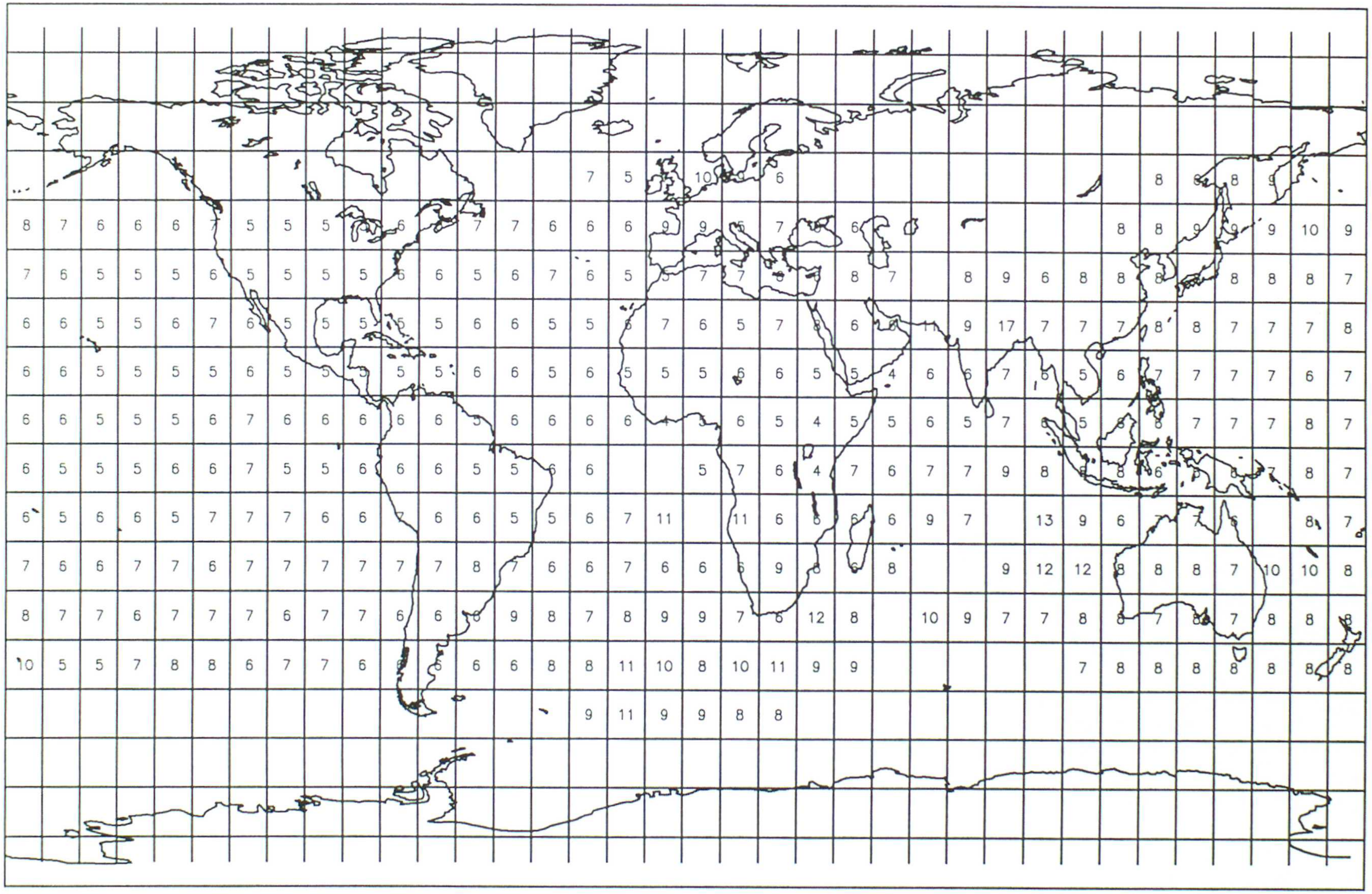
FIGURE 22



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
OCTOBER 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.6 -1.1 -3.6 -.8 -3.2 -3.0 -1.7 -3.9
-1.3 -1.2 -.4 .2 -1.4 -1.0 -.7 -.4 .3 -1.2 -1.1 -1.2 -.9 -.3 -2.0 -2.3 -3.7 -1.1 -1.9 -2.3 -2.4 -2.1 -1.8 -2.5 -3.7 -2.9 -2.4 -3.2
1.1 -.8 .1 -.5 .0 .5 .7 .4 .1 .4 -1.2 -.5 -.8 -1.0 -.6 .5 -.7 .3 .1 -1.4 -1.3 -2.8 -4.3 -2.3 2.5 2.2 1.2 -.3 -1.0 -.6 -.4 -1.0 .0 1.0
.2 -.4 -.2 -.4 -.2 -2.1 -.7 -.4 .2 -.9 -.6 -.9 -1.8 -.9 -.6 -.4 .0 -.4 .1 -2.1 -.4 .0 -.6 -.7 0.4 -.9 1.9 .6 .0 .5 .9 .9 .3 1.7 2.6 .9
2.0 1.4 1.3 1.2 .7 .5 .6 1.0 .9 .2 .7 1.2 -.6 -.7 .5 .4 -.3 -.6 1.4 1.8 .8 .5 -.4 .1 .6 1.1 1.5 1.5 .9 1.2 .8 .3 .2 -.7 1.7 2.3
1.3 1.8 2.0 1.6 1.1 1.6 1.1 1.0 1.0 .0 .7 .9 .7 .4 .0 .6 .6 .2 .6 1.4 1.0 .9 -.4 -.6 .7 -.4 .3 .6 .7 .3 .2 -.9 .7 1.0 1.5 1.6
1.6 .8 1.0 1.3 1.6 1.1 .2 .6 .1 .0 .4 1.2 1.6 1.1 .6 -.3 1.0 .5 1.0 .4 1.5 .9 .1 3.2 3.2 2.6 3.0 3.1 1.3 -.1 1.8 .6 2.5 2.6
1.1 .5 .1 .4 .4 2.1 2.2 2.2 .9 .7 .5 .2 1.1 1.0 1.0 .0 -2.1 -4.8 -3.8 -2.4 -1.4 -2.0 .0 -3.4 -3.3 6.6 1.4 .7 -1.2 -.8 3.5 2.7 2.8
-.5 -.3 -.4 -1.2 -.5 -1.1 -1.5 .2 -.2 -.4 -1.4 .2 -1.6 -.5 .3 -.3 -.3 .1 -1.0 -1.0 .2 .4 -1.3 -4.0 3.3 -1.4 -5.9 .8 -1.2 -1.2 -.1 -2.4 -.7 -1.0
-.3 .1 .6 .1 1.1 -1.0 -2.1 -1.1 -2.2 -2.7 -1.6 -1.0 .3 -.5 -.9 -1.4 -1.4 -1.6 -.8 -.3 -1.1 -4.3 -.6 2.0 -2.6 1.2 1.7 -1.2 .1 -1.5 -1.4 -1.3 .0 -1.7 -.8
.5 -.5 .9 1.4 -1.3 .1 -.5 -1.3 -1.6 -.9 -1.0 -.2 -.2 -1.9 -1.7 -2.0 -1.2 -.6 -2.8 -3.3 -3.8 -4.1 -1.2 -1.6 -2.7 -.1 -1.4 -1.0 -.4 -2.3
-3.2 -4.0 -2.4 -2.4 -2.3 -2.7

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
OCTOBER 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


7 5 10 9 6 8 8 8 9
8 7 6 6 6 7 5 5 5 5 6 7 7 6 6 6 9 9 5 7 6 6 8 8 9 9 9 10 9
7 6 5 5 5 6 5 5 5 5 6 6 5 6 7 6 5 5 7 7 8 8 8 7 8 9 6 8 8 8 8 8 8 7
6 6 5 5 6 7 6 5 5 5 5 5 6 6 5 5 6 7 6 5 7 8 6 8 11 9 17 7 7 7 8 8 7 7 7 8
6 6 5 5 5 5 6 5 5 5 5 5 6 6 5 6 5 5 5 6 6 5 5 4 6 6 7 6 5 6 7 7 7 7 6 7
6 6 5 5 5 6 7 6 6 6 6 6 5 6 6 6 6 4 5 6 5 4 5 5 6 5 7 6 5 8 6 7 7 7 8 7
6 5 5 5 6 6 7 5 5 6 6 6 5 5 6 6 5 7 6 4 7 6 7 7 9 8 8 8 6 5 8 7 8 7
6 5 6 6 5 7 7 7 6 6 7 6 6 5 5 6 7 11 11 6 6 6 6 9 7 13 9 6 7 7 6 8 7
7 6 6 7 7 6 7 7 7 7 7 7 8 7 6 6 7 6 6 6 9 8 6 8 9 12 12 8 8 8 7 10 10 8
8 7 7 6 7 7 7 6 7 7 6 6 6 9 8 7 8 9 9 7 6 12 8 10 9 7 7 8 8 7 8 7 8 8 8
10 5 5 7 8 8 6 7 7 6 6 6 6 6 8 8 11 10 8 10 11 9 9 7 8 8 8 8 8 8 8
9 11 9 9 8 8

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: October, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-11, NOAA-14 500 km.

Standard of comparison :Background field from Bracknell global model.

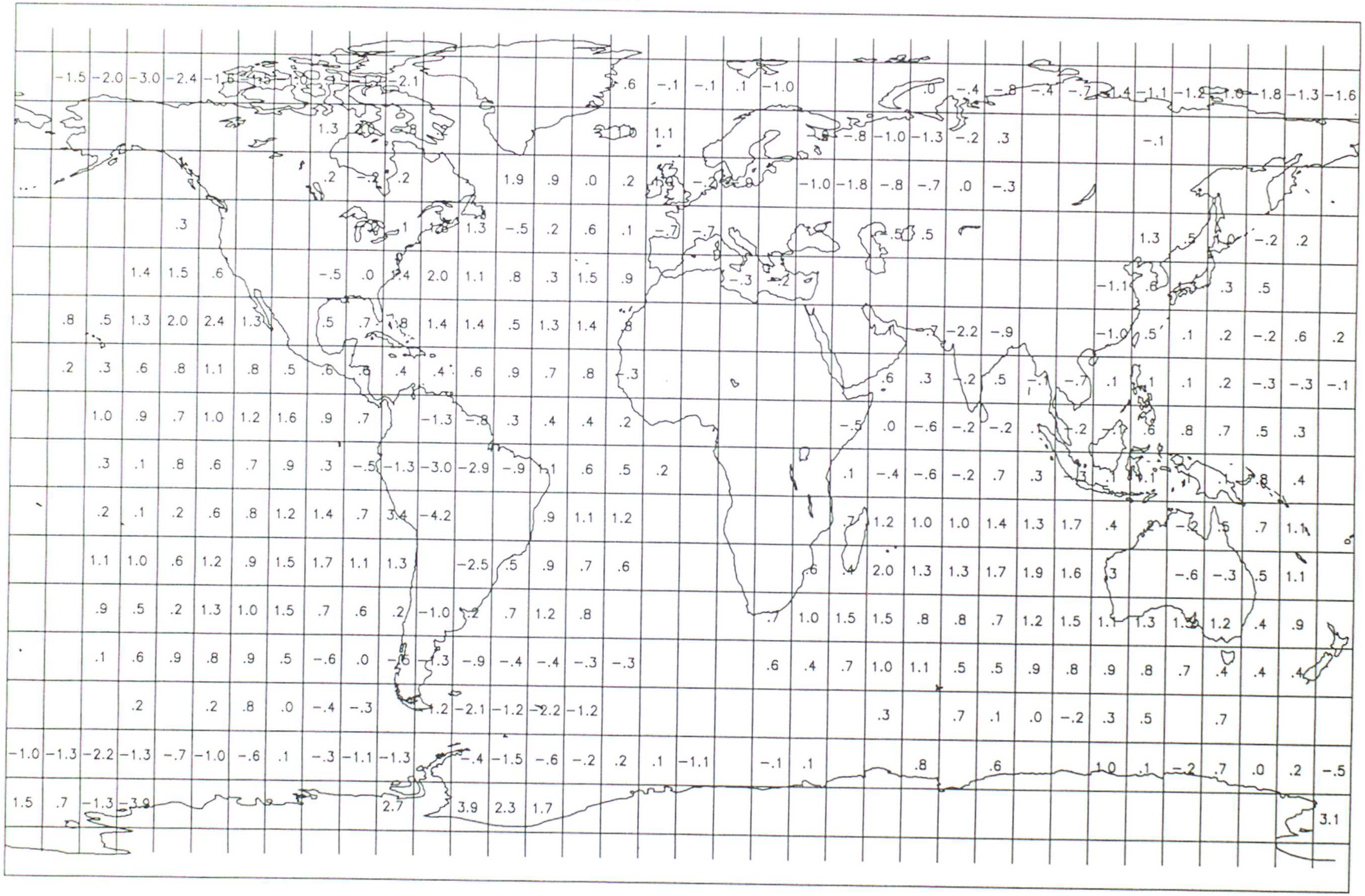
Selection Criteria :All SATEM soundings where number of observations > 30.

Data Extracted :Layer: 850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

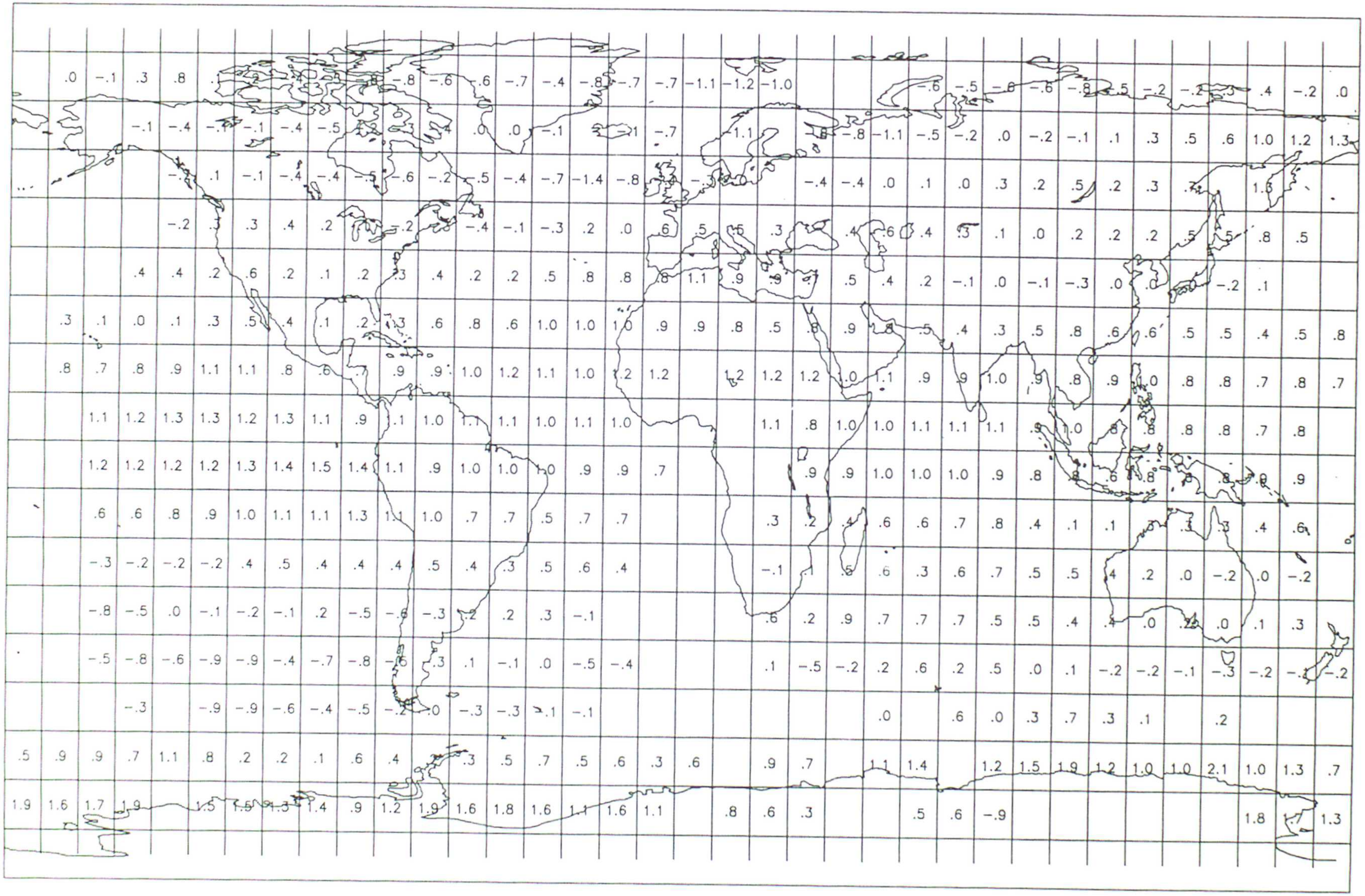
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
OCTOBER 1997
NOAA--11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25


-1.5 -2.0 -3.0 -2.4 -1.6 -1.5 -1.0 -2.1 .6 -.1 -.1 .1 -1.0 .0 -.4 -.8 -.4 -.7 -1.4 -1.1 -1.2 -1.0 -1.8 -1.3 -1.6
1.3 .8 1.1 -.8 -1.0 -1.3 -.2 .3 -.1
.2 -.2 .2 1.9 .9 .0 .2 -1.0 -1.8 -.8 -.7 .0 -.3
.3 .1 1.3 -.5 .2 .6 .1 -.7 -.7 .5 .5 1.3 .5 -.2 .2
1.4 1.5 .6 -.5 .0 .4 2.0 1.1 .8 .3 1.5 .9 -.3 .2 -1.1 .6 .3 .5
.8 .5 1.3 2.0 2.4 1.3 .5 .7 .8 1.4 1.4 .5 1.3 1.4 .8 -.7 -2.2 -.9 -1.0 .5 .1 .2 -.2 .6 .2
.2 .3 .6 .8 1.1 .8 .5 .6 .8 .4 .4 .6 .9 .7 .8 -.3 .6 .3 -.2 .5 -.1 -.7 .1 .1 .1 .2 -.3 -.3 -.1
1.0 .9 .7 1.0 1.2 1.6 .9 .7 -1.3 -.8 .3 .4 .4 .2 -.5 .0 -.6 -.2 -.2 -.2 .6 .8 .7 .5 .3
.3 .1 .8 .6 .7 .9 .3 -.5 -1.3 -3.0 -2.9 -.9 1.1 .6 .5 .2 .1 -.4 -.6 -.2 .7 .3 .1 .1 .8 .4
.2 .1 .2 .6 .8 1.2 1.4 .7 3.4 -4.2 .9 1.1 1.2 .7 1.2 1.0 1.0 1.4 1.3 1.7 .4 .2 -.2 .5 .7 1.1
1.1 1.0 .6 1.2 .9 1.5 1.7 1.1 1.3 -2.5 .5 .9 .7 .6 .6 .4 2.0 1.3 1.3 1.7 1.9 1.6 .3 -.6 -.3 .5 1.1
.9 .5 .2 1.3 1.0 1.5 .7 .6 .2 -1.0 .2 .7 1.2 .8 .7 1.0 1.5 1.5 .8 .8 .7 1.2 1.5 1.1 1.3 1.3 1.2 .4 .9
.1 .6 .9 .8 .9 .5 -.6 .0 -.6 -1.3 -.9 -.4 -.4 -.3 -.3 .6 .4 .7 1.0 1.1 .5 .5 .9 .8 .9 .8 .7 .4 .4 .4
.2 .2 .8 .0 -.4 -.3 -1.2 -2.1 -1.2 -2.2 -1.2 .3 .7 .1 .0 -.2 .3 .5 .7
-1.0 -1.3 -2.2 -1.3 -.7 -1.0 -.6 .1 -.3 -1.1 -1.3 -.4 -1.5 -.6 -.2 .2 .1 -1.1 -.1 .1 .8 .6 1.0 .1 -.2 .7 .0 .2 -.5
1.5 .7 -1.3 -3.9 2.7 3.9 2.3 1.7 3.1

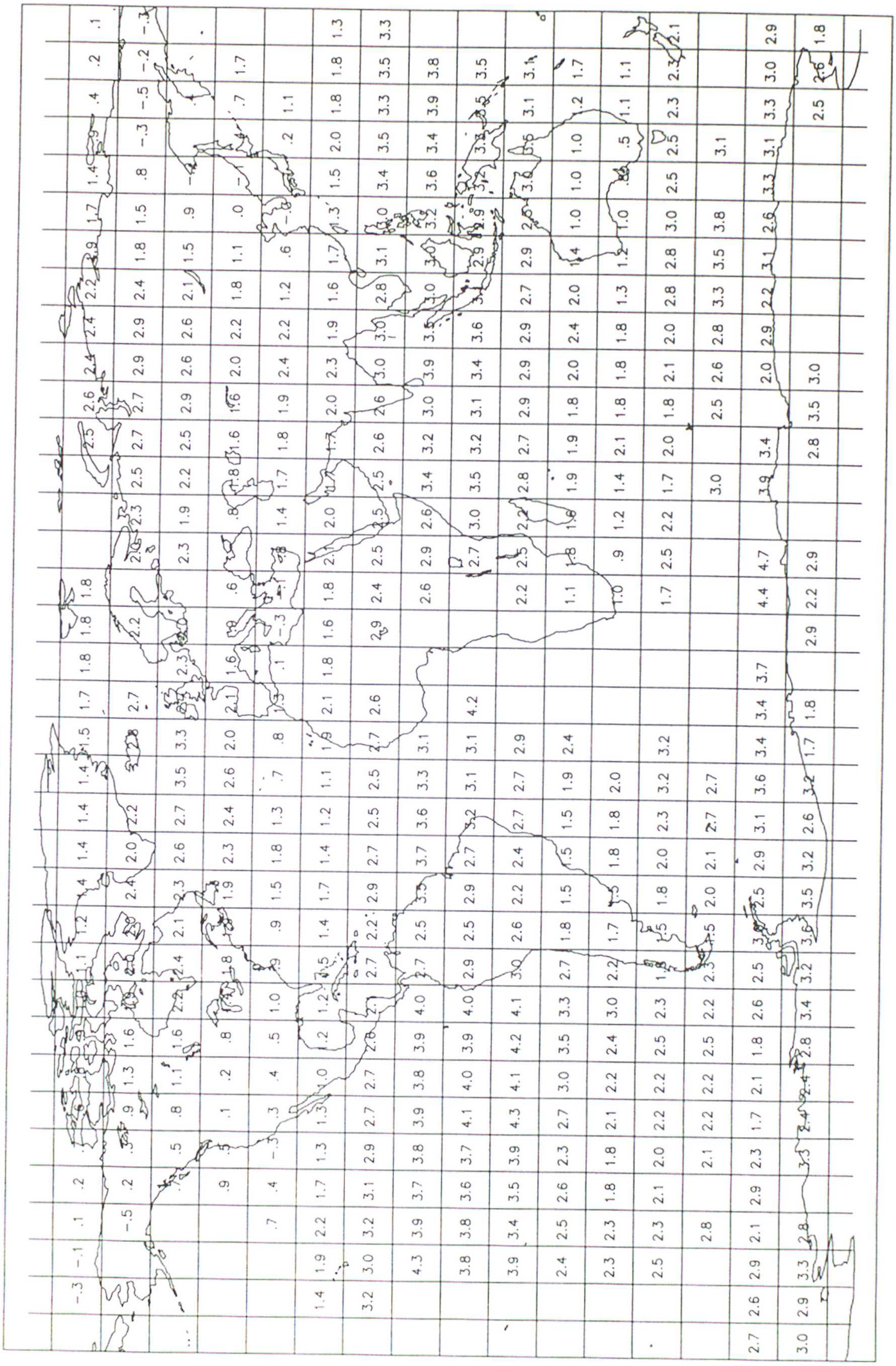
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
OCTOBER 1997
NOAA–11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 26


.0 -.1 .3 .8 -.8 -.6 .6 -.7 -.4 -.8 -.7 -.7 -1.1 -1.2 -1.0 -.6 -.5 -.6 -.6 -.8 .5 -.2 -.2 -.3 .4 -.2 .0
-.1 -.4 -.1 -.1 -.4 -.5 .0 .0 -.1 -1 -.7 -1.1 -.8 -1.1 -.5 -.2 .0 -.2 -.1 .1 .3 .5 .6 1.0 1.2 1.3
-.1 .1 -.1 -.4 -.4 -.5 -.6 -.2 -.5 -.4 -.7 -1.4 -.8 -.4 -.4 .0 .1 .0 .3 .2 .5 .2 .3 1.3
-.2 .3 .3 .4 .2 -.2 -.4 -.1 -.3 .2 .0 .6 .5 .5 .3 .4 .6 .4 .3 .1 .0 .2 .2 .2 .5 .5 .8 .5
.4 .4 .2 .6 .2 .1 .2 .3 .4 .2 .2 .5 .8 .8 .8 1.1 .9 .9 .7 .5 .4 .2 -.1 .0 -.1 -.3 .0 .0 -.2 .1
.3 .1 .0 .1 .3 .5 .4 .1 .2 .3 .6 .8 .6 1.0 1.0 1.0 .9 .9 .8 .5 .8 .9 .8 .5 .4 .3 .5 .8 .6 .6 .5 .5 .4 .5 .8
.8 .7 .8 .9 1.1 1.1 .8 .6 .7 .9 .9 1.0 1.2 1.1 1.0 1.2 1.2 1.2 1.2 1.2 1.0 1.1 .9 .9 1.0 .9 .8 .9 1.0 .8 .8 .7 .8 .7
1.1 1.2 1.3 1.3 1.2 1.3 1.1 .9 1.1 1.0 1.1 1.1 1.0 1.1 1.0 1.1 .8 1.0 1.0 1.1 1.1 1.1 .9 1.0 .8 .8 .8 .8 .7 .8
1.2 1.2 1.2 1.2 1.3 1.4 1.5 1.4 1.1 .9 1.0 1.0 1.0 .9 .9 .7 .9 .9 1.0 1.0 1.0 .9 .8 .6 .8 .8 .8 .9
.6 .6 .8 .9 1.0 1.1 1.1 1.3 1.1 1.0 .7 .7 .5 .7 .7 .3 .2 .4 .6 .6 .7 .8 .4 .1 .1 .3 .3 .3 .4 .6
-.3 -.2 -.2 -.2 .4 .5 .4 .4 .4 .5 .4 .3 .5 .6 .4 -.1 .1 .5 .6 .3 .6 .7 .5 .5 .4 .2 .0 -.2 .0 -.2
-.8 -.5 .0 -.1 -.2 -.1 .2 -.5 -.6 -.3 .2 .2 .3 -.1 .6 .2 .9 .7 .7 .7 .5 .5 .4 .4 .0 .2 .0 .1 .3
-.5 -.8 -.6 -.9 -.9 -.4 -.7 -.8 -.6 .3 .1 -.1 .0 -.5 -.4 .1 -.5 -.2 .2 .6 .2 .5 .0 .1 -.2 -.2 -.1 -.3 -.2 -.2 -.2
-.3 -.9 -.9 -.6 -.4 -.5 -.2 .0 -.3 -.3 .1 -.1 .0 .6 .0 .3 .7 .3 .1 .2
.5 .9 .9 .7 1.1 .8 .2 .2 .1 .6 .4 .3 .5 .7 .5 .6 .3 .6 .9 .7 1.1 1.4 1.2 1.5 1.9 1.2 1.0 1.0 2.1 1.0 1.3 .7
1.9 1.6 1.7 1.9 1.5 1.5 1.3 1.4 .9 1.2 1.9 1.6 1.8 1.6 1.1 1.6 1.1 .8 .6 .3 .5 .6 -.9 1.8 1.7 1.3

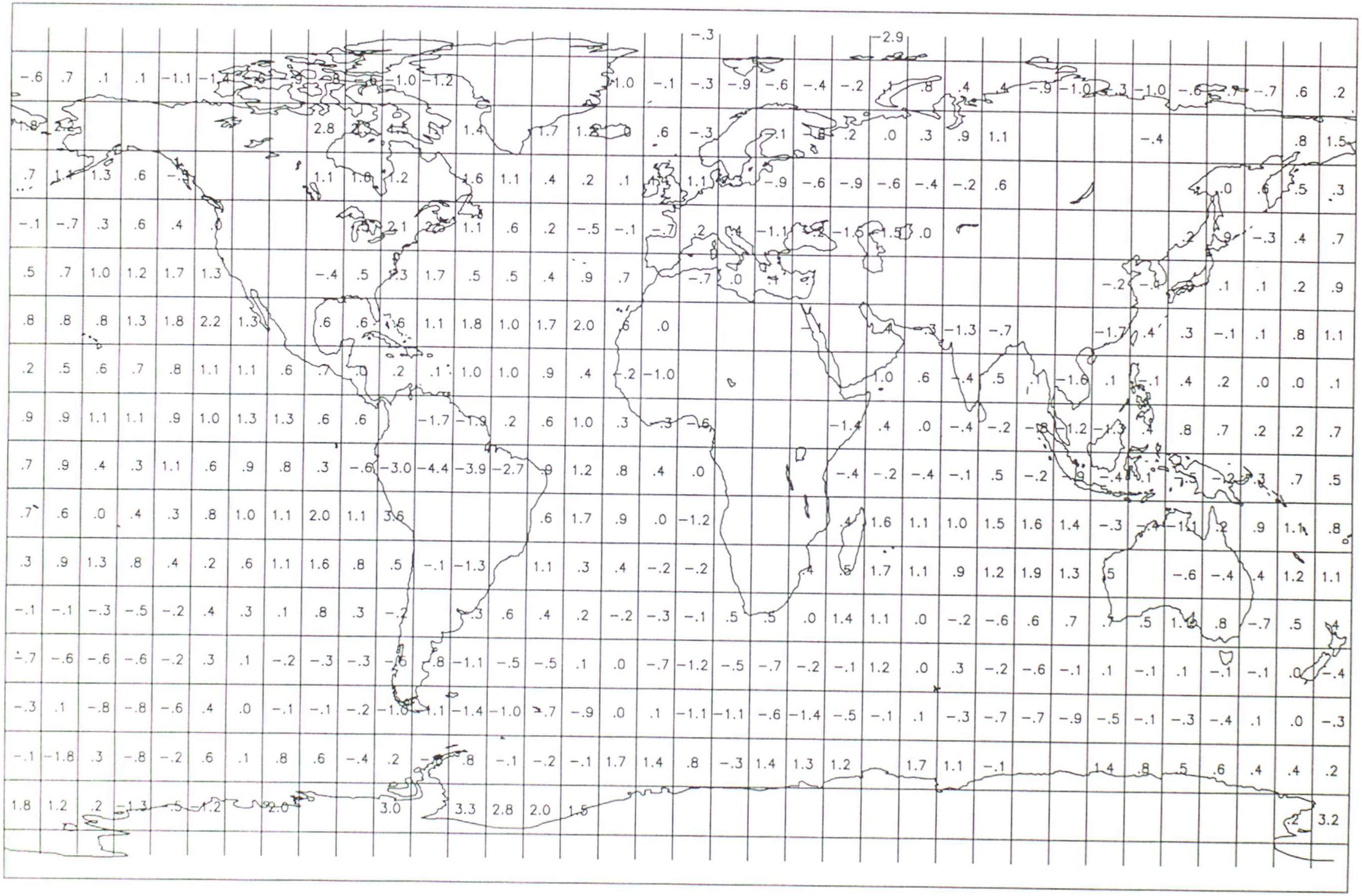
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
OCTOBER 1997
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 27



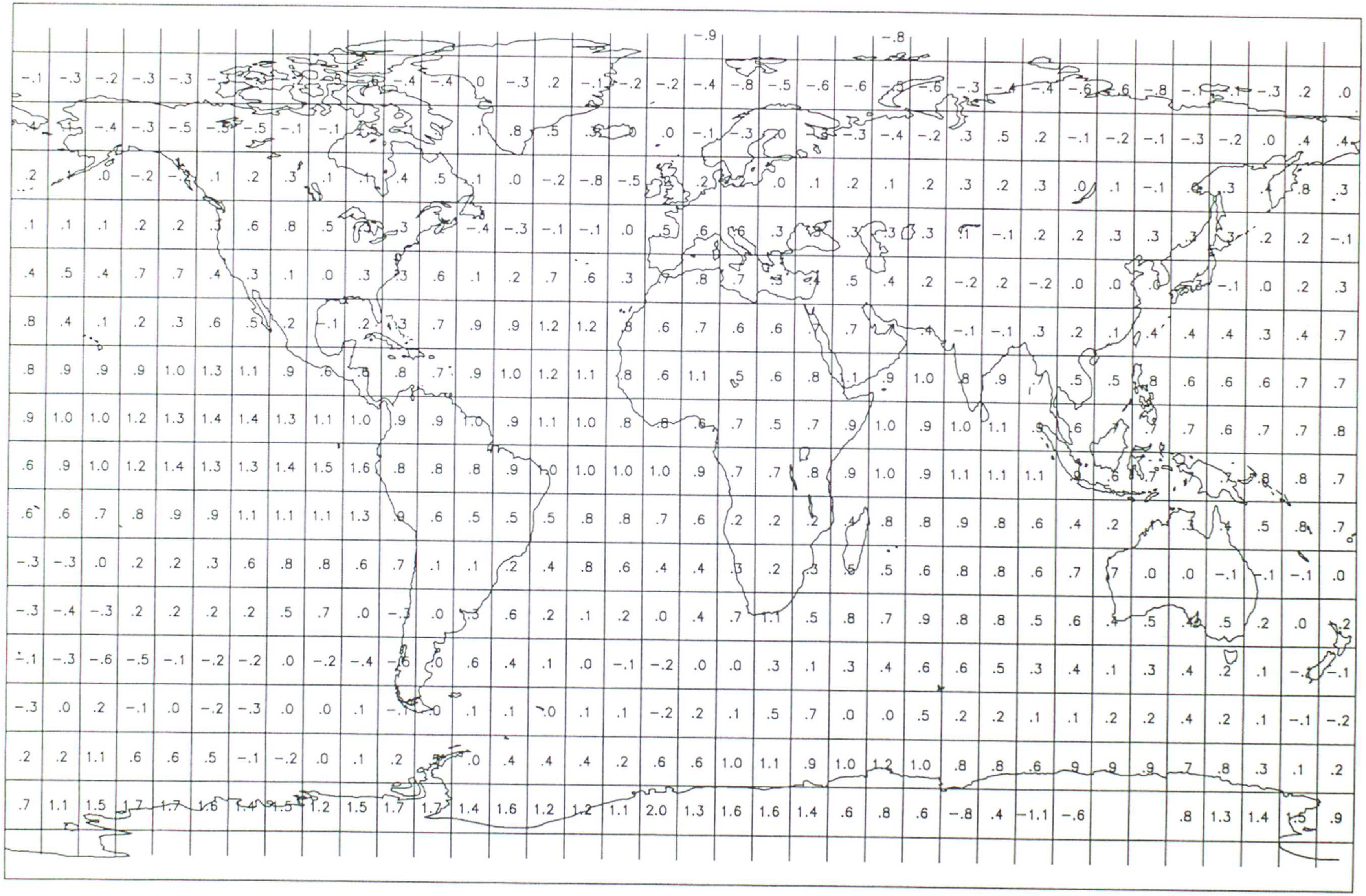
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
OCTOBER 1997
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28


-.3 -2.9
-.6 .7 .1 .1 -1.1 -1.4 -1.0 -1.2 1.0 -.1 -.3 -.9 -.6 -.4 -.2 .8 .4 .4 -.9 -1.0 -.3 -1.0 -.6 -.7 -.7 .6 .2
1.8 2.2 2.8 2.3 4.5 2.1 1.4 1.7 1.2 .6 -.3 .1 .8 .2 .0 .3 .9 1.1 -.4 .8 1.5
.7 1.4 1.3 .6 -.3 1.1 1.0 1.2 1.6 1.1 .4 .2 .1 1.1 -.9 -.6 -.9 -.6 -.4 -.2 .6 .0 .6 .5 .3
-.1 -.7 .3 .6 .4 .0 2.1 1.1 .6 .2 -.5 -.1 -.7 .2 .4 -1.1 -1.2 -1.6 -1.5 .0 .2 .9 -.3 .4 .7
.5 .7 1.0 1.2 1.7 1.3 -.4 .5 .3 1.7 .5 .5 .4 .9 .7 -.7 .0 .4 -.2 -.4 .1 .1 .2 .9
.8 .8 .8 1.3 1.8 2.2 1.3 .6 .6 .6 1.1 1.8 1.0 1.7 2.0 .6 .0 .4 -.3 -1.3 -.7 -1.7 .4 .3 -.1 .1 .8 1.1
.2 .5 .6 .7 .8 1.1 1.1 .6 .7 .0 .2 .1 1.0 1.0 .9 .4 -.2 -1.0 1.0 .6 -.4 .5 -1.6 .1 -.1 .4 .2 .0 .0 .1
.9 .9 1.1 1.1 .9 1.0 1.3 1.3 .6 .6 -1.7 -1.9 .2 .6 1.0 .3 -.3 -.6 -1.4 .4 .0 -.4 -.2 -.8 -1.2 -1.3 .4 .8 .7 .2 .2 .7
.7 .9 .4 .3 1.1 .6 .9 .8 .3 -.6 -3.0 -4.4 -3.9 -2.7 .9 1.2 .8 .4 .0 -.4 -.2 -.4 -.1 .5 -.2 -.9 -.4 .1 -.5 -.2 -.3 .7 .5
.7 .6 .0 .4 .3 .8 1.0 1.1 2.0 1.1 3.6 .6 1.7 .9 .0 -1.2 .4 1.6 1.1 1.0 1.5 1.6 1.4 -.3 -.4 -1.1 .2 .9 1.1 .8
.3 .9 1.3 .8 .4 .2 .6 1.1 1.6 .8 .5 -.1 -1.3 1.1 .3 .4 -.2 -.2 .4 .5 1.7 1.1 .9 1.2 1.9 1.3 .5 -.6 -.4 .4 1.2 1.1
-.1 -.1 -.3 -.5 -.2 .4 .3 .1 .8 .3 -.2 .3 .6 .4 .2 -.2 -.3 -.1 .5 .5 .0 1.4 1.1 .0 -.2 -.6 .6 .7 .7 .5 1.1 .8 -.7 .5 .4
-.7 -.6 -.6 -.6 -.2 .3 .1 -.2 -.3 -.3 -.6 .8 -1.1 -.5 -.5 .1 .0 -.7 -1.2 -.5 -.7 -.2 -.1 1.2 .0 .3 -.2 -.6 -.1 .1 -.1 .1 -.1 -.1 .0 -.4
-.3 .1 -.8 -.8 -.6 .4 .0 -.1 -.1 -.2 -1.0 -1.1 -1.4 -1.0 -.7 -.9 .0 .1 -1.1 -1.1 -.6 -1.4 -.5 -.1 .1 -.3 -.7 -.7 -.9 -.5 -.1 -.3 -.4 .1 .0 -.3
-.1 -1.8 .3 -.8 -.2 .6 .1 .8 .6 -.4 .2 .8 -.1 -.2 -.1 1.7 1.4 .8 -.3 1.4 1.3 1.2 1.7 1.1 -.1 1.4 .8 .5 .6 .4 .4 .2
1.8 1.2 .2 -1.3 .5 -1.2 2.0 3.0 3.3 2.8 2.0 1.5 .2 3.2

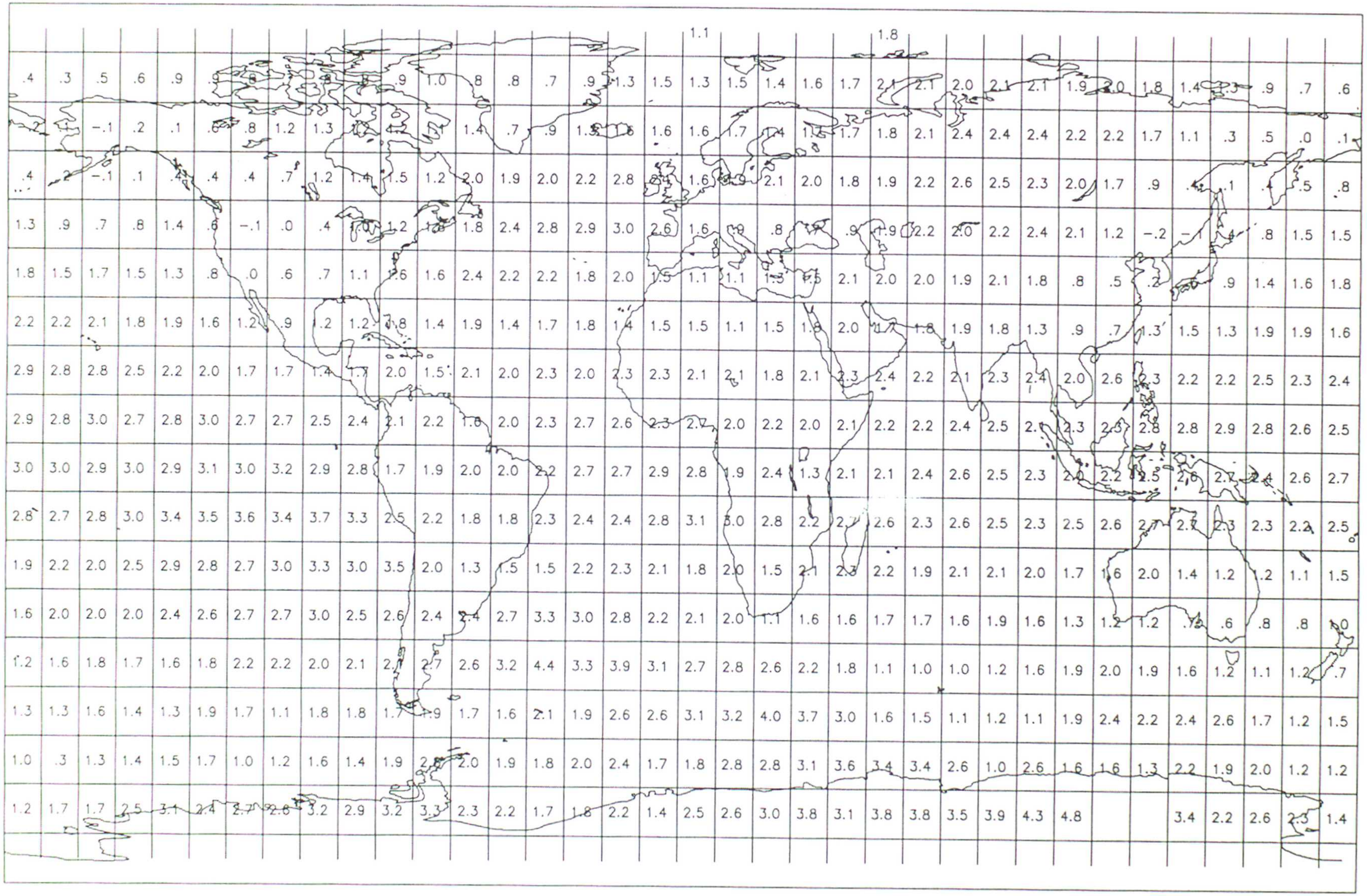
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
OCTOBER 1997
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
OCTOBER 1997
NOAA-14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30



																		1.1					1.8												
.4	.3	.5	.6	.9	.9	.8		.8	.8	.9	1.0	.8	.8	.7	.9	1.3	1.5	1.3	1.5	1.4	1.6	1.7	2.1	2.1	2.0	2.1	2.1	1.9	2.0	1.8	1.4	2.3	.9	.7	.6
.2	.1	−.1	.2	.1	.6	.8	1.2	1.3	1.2	4.2	1.1	1.4	.7	.9	1.3	1.6	1.6	1.6	1.7	1.4	1.5	1.7	1.8	2.1	2.4	2.4	2.4	2.2	2.2	1.7	1.1	.3	.5	.0	.1
.4	.2	−.1	.1	.4	.4	.4	.7	1.2	1.4	1.5	1.2	2.0	1.9	2.0	2.2	2.8	2.4	1.6	.9	2.1	2.0	1.8	1.9	2.2	2.6	2.5	2.3	2.0	1.7	.9	.4	.1	.4	.5	.8
1.3	.9	.7	.8	1.4	.6	−.1	.0	.4	1.0	1.2	1.8	1.8	2.4	2.8	2.9	3.0	2.6	1.6	.9	.8	.7	.9	1.9	2.2	2.0	2.2	2.4	2.1	1.2	−.2	−.1	.4	.8	1.5	1.5
1.8	1.5	1.7	1.5	1.3	.8	.0	.6	.7	1.1	1.6	1.6	2.4	2.2	2.2	1.8	2.0	1.5	1.1	1.1	1.3	1.5	2.1	2.0	2.0	1.9	2.1	1.8	.8	.5	.2	[illegible]	.9	1.4	1.6	1.8
2.2	2.2	2.1	1.8	1.9	1.6	1.2	.9	1.2	1.2	1.8	1.4	1.9	1.4	1.7	1.8	1.4	1.5	1.5	1.1	1.5	1.8	2.0	1.7	1.8	1.9	1.8	1.3	.9	.7	1.3	1.5	1.3	1.9	1.9	1.6
2.9	2.8	2.8	2.5	2.2	2.0	1.7	1.7	1.4	1.7	2.0	1.5	2.1	2.0	2.3	2.0	2.3	2.3	2.1	2.1	1.8	2.1	2.3	2.4	2.2	2.1	2.3	2.4	2.0	2.6	2.3	2.2	2.2	2.5	2.3	2.4
2.9	2.8	3.0	2.7	2.8	3.0	2.7	2.7	2.5	2.4	2.1	2.2	1.6	2.0	2.3	2.7	2.6	2.3	2.7	2.0	2.2	2.0	2.1	2.2	2.2	2.4	2.5	2.1	2.3	2.3	2.8	2.8	2.9	2.8	2.6	2.5
3.0	3.0	2.9	3.0	2.9	3.1	3.0	3.2	2.9	2.8	1.7	1.9	2.0	2.0	2.2	2.7	2.7	2.9	2.8	1.9	2.4	1.3	2.1	2.1	2.4	2.6	2.5	2.3	2.0	2.2	2.5	2.6	2.7	2.4	2.6	2.7
2.8	2.7	2.8	3.0	3.4	3.5	3.6	3.4	3.7	3.3	2.5	2.2	1.8	1.8	2.3	2.4	2.4	2.8	3.1	3.0	2.8	2.2	2.7	2.6	2.3	2.6	2.5	2.3	2.5	2.6	2.7	2.7	2.3	2.3	2.2	2.5
1.9	2.2	2.0	2.5	2.9	2.8	2.7	3.0	3.3	3.0	3.5	2.0	1.3	1.5	1.5	2.2	2.3	2.1	1.8	2.0	1.5	2.1	2.3	2.2	1.9	2.1	2.1	2.0	1.7	1.6	2.0	1.4	1.2	1.2	1.1	1.5
1.6	2.0	2.0	2.0	2.4	2.6	2.7	2.7	3.0	2.5	2.6	2.4	2.4	2.7	3.3	3.0	2.8	2.2	2.1	2.0	1.1	1.6	1.6	1.7	1.7	1.6	1.9	1.6	1.3	1.2	1.2	.7	.6	.8	.8	1.0
1.2	1.6	1.8	1.7	1.6	1.8	2.2	2.2	2.0	2.1	2.1	2.7	2.6	3.2	4.4	3.3	3.9	3.1	2.7	2.8	2.6	2.2	1.8	1.1	1.0	1.0	1.2	1.6	1.9	2.0	1.9	1.6	1.2	1.1	1.2	.7
1.3	1.3	1.6	1.4	1.3	1.9	1.7	1.1	1.8	1.8	1.7	1.9	1.7	1.6	2.1	1.9	2.6	2.6	3.1	3.2	4.0	3.7	3.0	1.6	1.5	1.1	1.2	1.1	1.9	2.4	2.2	2.4	2.6	1.7	1.2	1.5
1.0	.3	1.3	1.4	1.5	1.7	1.0	1.2	1.6	1.4	1.9	2.8	2.0	1.9	1.8	2.0	2.4	1.7	1.8	2.8	2.8	3.1	3.6	3.4	3.4	2.6	1.0	2.6	1.6	1.6	1.3	2.2	1.9	2.0	1.2	1.2
1.2	1.7	1.7	2.5	3.1	2.4	2.7	2.6	3.2	2.9	3.2	3.3	2.3	2.2	1.7	1.8	2.2	1.4	2.5	2.6	3.0	3.8	3.1	3.8	3.8	3.5	3.9	4.3	4.8			3.4	2.2	2.6	2.3	1.4

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures **Period**		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
09710	10.2	-27.4	ALL	MSLP	SUR	7	0	0	0.7	1.1	1.3
13903	26.5	-40.8	ALL	MSLP	SUR	261	0	0	1.0	0.8	1.2
13906	21.6	-52.9	ALL	MSLP	SUR	252	0	0	0.9	0.3	0.9
13910	27.0	-47.7	ALL	MSLP	SUR	266	0	0	0.9	-0.9	1.3
13911	27.2	-47.6	ALL	MSLP	SUR	156	0	0	1.0	0.8	1.3
13912	17.7	-61.8	ALL	MSLP	SUR	283	0	0	1.1	1.0	1.5
13913	20.7	-50.9	ALL	MSLP	SUR	281	0	0	0.9	0.3	1.0
19971	42.5	-40.1	ALL	MSLP	SUR	8	0	0	1.5	-0.1	1.5
41505	17.6	-56.7	ALL	MSLP	SUR	379	0	0	0.9	0.7	1.1
41506	17.7	-48.6	ALL	MSLP	SUR	384	0	0	0.9	0.3	0.9
41521	19.5	-52.8	ALL	MSLP	SUR	242	0	0	0.8	0.4	0.9
41523	10.2	-51.9	ALL	MSLP	SUR	370	0	0	1.0	3.2	3.4
41524	11.7	-50.3	ALL	MSLP	SUR	378	0	0	1.0	0.1	1.0
41525	10.4	-37.2	ALL	MSLP	SUR	353	0	0	0.8	0.4	0.9
41529	34.4	-28.4	ALL	MSLP	SUR	1	0	0	0.0	-1.6	1.6
41922	29.8	-55.9	ALL	MSLP	SUR	72	0	0	1.3	1.1	1.7
41924	24.4	-47.2	ALL	MSLP	SUR	284	0	0	0.9	-1.2	1.5
41943	16.8	-70.7	ALL	MSLP	SUR	111	0	0	1.1	0.8	1.4
42534	36.2	-75.7	ALL	MSLP	SUR	3	0	0	0.4	0.8	0.9
44513	58.9	-1.8	ALL	MSLP	SUR	329	0	0	1.2	-0.1	1.2
44605	46.3	-30.6	ALL	MSLP	SUR	150	0	0	0.9	0.9	1.3
44608	53.6	-25.3	ALL	MSLP	SUR	1084	0	0	1.1	0.6	1.3
44613	63.9	-27.2	ALL	MSLP	SUR	441	5	1	1.1	0.0	1.1
44616	52.0	-47.0	ALL	MSLP	SUR	474	2	0	1.8	0.2	1.8
44621	53.9	-34.3	ALL	MSLP	SUR	817	4	0	1.2	0.0	1.2
44624	57.6	-13.2	ALL	MSLP	SUR	1178	2	0	1.1	0.4	1.2
44726	60.7	-45.8	ALL	MSLP	SUR	6	0	0	3.2	1.4	3.5
44727	58.4	-31.0	ALL	MSLP	SUR	1882	6	0	1.3	0.3	1.3
44728	60.7	-16.4	ALL	MSLP	SUR	1247	0	0	1.1	0.4	1.2
44742	39.3	-20.0	ALL	MSLP	SUR	650	3	0	1.1	0.4	1.2
44743	42.7	-13.5	ALL	MSLP	SUR	595	8	1	1.2	0.6	1.3
44760	33.3	-48.9	ALL	MSLP	SUR	343	0	0	1.1	0.1	1.1
44762	40.1	-18.7	ALL	MSLP	SUR	713	1	0	1.2	0.4	1.3
44763	49.4	-49.0	ALL	MSLP	SUR	322	0	0	1.4	0.1	1.4
44765	57.1	-38.6	ALL	MSLP	SUR	889	1	0	1.5	0.6	1.6
44768	57.3	-27.7	ALL	MSLP	SUR	1359	4	0	1.3	0.4	1.3
44769	51.1	-27.0	ALL	MSLP	SUR	1072	4	0	1.1	0.3	1.1
44771	52.7	-35.9	ALL	MSLP	SUR	937	4	0	1.4	0.4	1.5
44773	61.5	-26.8	ALL	MSLP	SUR	1435	6	0	1.1	0.3	1.2
44775	63.4	-36.0	ALL	MSLP	SUR	1481	9	1	1.4	0.2	1.4
44901	55.2	-53.3	ALL	MSLP	SUR	151	1	1	1.1	1.3	1.7
44911	55.8	-16.5	ALL	MSLP	SUR	64	0	0	1.1	0.8	1.4
44912	51.6	-36.1	ALL	MSLP	SUR	131	0	0	1.6	1.1	1.9
44925	59.6	-49.0	ALL	MSLP	SUR	176	0	0	1.2	1.2	1.7
49710	39.7	-40.0	ALL	MSLP	SUR	2	0	0	0.4	0.8	0.9
51632	44.7	-63.6	ALL	MSLP	SUR	6	0	0	0.9	-3.7	3.8
51633	44.7	-63.6	ALL	MSLP	SUR	10	0	0	0.9	-1.9	2.1
51634	44.7	-63.6	ALL	MSLP	SUR	16	0	0	1.1	-2.7	2.9
51635	44.7	-63.6	ALL	MSLP	SUR	25	0	0	1.0	-3.9	4.1
61551	44.7	-63.6	ALL	MSLP	SUR	24	0	0	1.0	-4.0	4.1
61552	44.7	-63.6	ALL	MSLP	SUR	27	0	0	0.9	-4.2	4.3
62515	45.3	-17.1	ALL	MSLP	SUR	695	1	0	2.2	0.0	2.2
62552	56.2	-9.6	ALL	MSLP	SUR	925	4	0	1.6	-0.3	1.6
62553	48.9	-21.8	ALL	MSLP	SUR	748	3	0	1.2	0.5	1.3
62554	53.4	-13.4	ALL	MSLP	SUR	803	0	0	1.4	0.3	1.4
62555	45.0	-17.8	ALL	MSLP	SUR	1054	6	1	1.1	0.1	1.1
62556	49.4	-20.6	ALL	MSLP	SUR	1208	1	0	1.0	0.4	1.1
62557	46.6	-21.6	ALL	MSLP	SUR	1049	2	0	1.1	0.6	1.3
62558	50.2	-22.3	ALL	MSLP	SUR	1071	3	0	1.0	0.6	1.2
62570	45.9	-16.8	ALL	MSLP	SUR	225	0	0	1.3	0.0	1.3

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
62697	48.6	-32.4	ALL	MSLP	SUR	839	19	2	1.2	0.5	1.3
62701	50.6	-2.7	ALL	MSLP	SUR	1	0	0	0.0	-0.2	0.2
62703	57.0	-9.9	ALL	MSLP	SUR	1	0	0	0.0	1.8	1.8
62712	57.3	-8.4	ALL	MSLP	SUR	371	1	0	1.2	0.4	1.2
62713	38.7	-28.0	ALL	MSLP	SUR	439	0	0	1.4	-1.7	2.2
62804	59.3	-4.2	ALL	MSLP	SUR	1110	0	0	1.0	0.0	1.0
62881	51.0	-13.3	ALL	MSLP	SUR	1	0	0	0.0	1.2	1.2
62927	52.4	-22.3	ALL	MSLP	SUR	117	0	0	1.0	1.1	1.5
64528	59.3	-39.4	ALL	MSLP	SUR	1698	5	0	1.4	0.2	1.4
64561	54.6	-43.0	ALL	MSLP	SUR	1031	3	0	1.4	0.4	1.5
64563	59.3	-51.2	ALL	MSLP	SUR	1659	3	0	1.2	-0.1	1.2
64845	59.2	-18.7	ALL	MSLP	SUR	1	0	0	0.0	0.6	0.6
65594	61.6	-17.3	ALL	MSLP	SUR	1957	6	0	1.3	0.2	1.3
65596	52.6	-44.7	ALL	MSLP	SUR	635	2	0	1.4	-0.2	1.4
65597	58.3	-46.6	ALL	MSLP	SUR	1618	5	0	1.3	0.1	1.3
WIND SPEED											
09710	10.2	-27.4	ALL	SPEED	SUR	7	0	0	1.4	1.3	1.9
19971	42.5	-40.1	ALL	SPEED	SUR	7	0	0	2.0	3.6	4.1
41505	17.6	-56.7	ALL	SPEED	SUR	213	0	0	1.7	0.0	1.7
41506	17.7	-48.6	ALL	SPEED	SUR	210	0	0	1.5	0.9	1.8
41521	19.5	-52.8	ALL	SPEED	SUR	78	17	22	7.6	8.0	11.0
41523	10.2	-51.9	ALL	SPEED	SUR	205	1	0	2.8	1.3	3.1
41524	11.7	-50.3	ALL	SPEED	SUR	206	0	0	1.9	0.9	2.1
41525	10.4	-37.2	ALL	SPEED	SUR	190	1	1	2.0	0.6	2.1
44621	53.9	-34.3	ALL	SPEED	SUR	345	3	1	2.1	-0.6	2.2
44624	57.6	-13.2	ALL	SPEED	SUR	787	1	0	2.0	-1.2	2.3
44726	60.7	-45.8	ALL	SPEED	SUR	4	0	0	0.5	-17.2	17.2
44742	39.3	-20.0	ALL	SPEED	SUR	512	1	0	2.2	-0.7	2.3
44762	40.1	-18.7	ALL	SPEED	SUR	444	1	0	1.8	-0.8	2.0
44768	57.3	-27.7	ALL	SPEED	SUR	1	1	100	0.0	0.0	0.0
44773	61.5	-26.8	ALL	SPEED	SUR	1376	2	0	2.0	-0.2	2.0
49710	39.7	-40.0	ALL	SPEED	SUR	2	0	0	2.6	2.7	3.7
62552	56.2	-9.6	ALL	SPEED	SUR	894	0	0	1.5	-0.7	1.6
62553	48.9	-21.8	ALL	SPEED	SUR	726	0	0	1.9	-0.4	1.9
62559	43.8	-18.0	ALL	SPEED	SUR	617	0	0	1.7	0.1	1.7
62562	48.3	-18.1	ALL	SPEED	SUR	631	0	0	1.9	0.3	1.9
62563	47.9	-17.0	ALL	SPEED	SUR	585	0	0	1.9	0.2	2.0
62564	48.2	-17.9	ALL	SPEED	SUR	516	0	0	2.0	0.0	2.0
62565	52.5	-17.9	ALL	SPEED	SUR	654	0	0	1.7	0.0	1.7
62566	42.0	-17.5	ALL	SPEED	SUR	615	0	0	1.9	0.4	1.9
62567	45.4	-15.5	ALL	SPEED	SUR	598	0	0	2.0	0.4	2.1
62569	45.4	-17.1	ALL	SPEED	SUR	593	0	0	2.2	-0.3	2.2
62570	45.9	-16.8	ALL	SPEED	SUR	620	1	0	1.8	-0.5	1.9
62703	57.0	-9.9	ALL	SPEED	SUR	1	0	0	0.0	0.1	0.1
62881	51.0	-13.3	ALL	SPEED	SUR	1	0	0	0.0	0.1	0.1
64845	59.2	-18.7	ALL	SPEED	SUR	1	0	0	0.0	-1.5	1.5
WIND DIRECTION											
09710	10.2	-27.4	ALL	DIRN.	SUR	3	0	0	5.3	-5.2	7.4
19971	42.5	-40.1	ALL	DIRN.	SUR	7	0	0	12.6	-5.7	13.8
41505	17.6	-56.7	ALL	DIRN.	SUR	132	0	0	32.5	2.0	32.5
41506	17.7	-48.6	ALL	DIRN.	SUR	104	0	0	21.3	9.2	23.2
41521	19.5	-52.8	ALL	DIRN.	SUR	61	17	28	80.0	0.3	80.0
41523	10.2	-51.9	ALL	DIRN.	SUR	146	1	1	25.2	-12.1	27.9
41524	11.7	-50.3	ALL	DIRN.	SUR	123	0	0	21.4	-5.2	22.1
41525	10.4	-37.2	ALL	DIRN.	SUR	161	1	1	29.6	-1.8	29.7
44621	53.9	-34.3	ALL	DIRN.	SUR	284	3	1	36.4	-33.4	49.4
44624	57.6	-13.2	ALL	DIRN.	SUR	613	1	0	23.6	7.6	24.8

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION											
44726	60.7	-45.8	ALL	DIRN.	SUR	4	0	0	122.3	52.9	133.2
44742	39.3	-20.0	ALL	DIRN.	SUR	438	1	0	28.2	1.8	28.3
44762	40.1	-18.7	ALL	DIRN.	SUR	376	1	0	32.1	2.5	32.2
44768	57.3	-27.7	ALL	DIRN.	SUR	1	1	100	0.0	0.0	0.0
44773	61.5	-26.8	ALL	DIRN.	SUR	1256	2	0	21.5	-9.9	23.6
49710	39.7	-40.0	ALL	DIRN.	SUR	2	0	0	12.2	30.2	32.6
62552	56.2	-9.6	ALL	DIRN.	SUR	729	0	0	17.2	3.9	17.6
62553	48.9	-21.8	ALL	DIRN.	SUR	557	0	0	28.1	-3.7	28.4
62559	43.8	-18.0	ALL	DIRN.	SUR	439	0	0	18.5	2.4	18.6
62562	48.3	-18.1	ALL	DIRN.	SUR	470	0	0	23.0	-4.5	23.5
62563	47.9	-17.0	ALL	DIRN.	SUR	435	0	0	26.3	-5.7	26.9
62564	48.2	-17.9	ALL	DIRN.	SUR	370	0	0	21.7	-1.2	21.7
62565	52.5	-17.9	ALL	DIRN.	SUR	567	0	0	23.1	4.6	23.5
62566	42.0	-17.5	ALL	DIRN.	SUR	506	0	0	20.7	-6.5	21.7
62567	45.4	-15.5	ALL	DIRN.	SUR	417	0	0	26.1	7.8	27.3
62569	45.4	-17.1	ALL	DIRN.	SUR	426	0	0	20.7	3.9	21.0
62570	45.9	-16.8	ALL	DIRN.	SUR	453	1	0	19.9	0.2	19.9
62881	51.0	-13.3	ALL	DIRN.	SUR	1	0	0	0.0	13.3	13.3
64845	59.2	-18.7	ALL	DIRN.	SUR	1	0	0	0.0	-11.0	11.0

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: US ACARs and ADS data are shown at the bottom of the table as US ACAR and ADS respectively.

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3378	0	1	1.7	0.0	3390	0	2	0	8.5	0.6
ACA	1496	1	2	1.8	-0.2	1527	0	2	0	8.3	0.7
AEA	360	0	100	3.0	1.0	357	0	5	0	9.9	0.9
AEL	287	6	19	3.7	1.1	296	0	7	0	11.3	1.9
AFL	251	0	3	1.9	0.2	250	0	5	0	9.4	-0.5
AFR	1047	1	7	1.8	0.2	1065	0	8	0	9.5	1.2
AIH	279	1	3	1.8	0.2	271	0	6	0	11.6	1.2
AJM	43	2	5	1.9	-0.6	40	0	3	0	10.0	1.0
AMT	21	0	100	1.9	0.7	21	0	14	0	7.8	3.2
AMX	215	2	3	2.1	0.2	216	0	5	0	10.6	1.4
ANZ	244	1	2	2.0	-0.9	243	1	3	0	8.4	0.4
AOM	237	2	6	2.0	0.8	239	0	4	0	9.4	0.9
ARP	24	0	4	1.9	-0.2	23	0	0	0	6.0	0.3
AUA	24	0	0	1.6	-0.8	25	0	0	0	6.4	1.3
AVA	157	0	3	1.9	0.0	163	1	4	0	9.9	1.9
AZA	360	1	5	2.3	0.3	367	0	5	0	9.6	1.5
BAL	544	1	15	1.9	-0.3	563	0	16	0	8.6	1.1
BAW	1663	1	10	2.0	0.1	1675	0	11	0	8.3	0.6
BBB	26	0	4	1.4	0.2	25	0	4	0	8.0	1.1
BWA	70	3	100	3.7	2.7	73	0	10	1	11.1	0.2
CDN	419	0	2	1.7	0.1	417	1	3	0	7.8	0.7
CFG	558	0	2	2.0	-0.8	567	0	3	0	9.1	1.0
CKS	31	0	0	1.6	0.3	30	0	0	0	8.7	2.4
CKT	117	0	3	1.6	0.4	123	0	6	0	8.8	2.2
CLX	327	0	1	1.8	-0.5	335	0	3	0	8.8	-0.1
CMM	359	8	9	1.7	0.2	358	0	1	0	7.4	0.8
COA	830	0	4	2.0	0.5	837	0	8	0	12.1	2.1
CRL	113	0	4	2.2	0.9	118	1	8	1	8.4	0.7
CSA	31	3	3	1.7	-0.6	31	0	0	0	7.3	-0.5
CTB	209	0	2	1.7	0.2	209	0	3	0	9.5	1.3
CUB	252	5	15	2.6	1.0	254	0	12	0	10.2	1.6
DAF	22	0	0	2.4	-1.4	22	0	5	0	12.5	0.5
DAL	3120	0	2	1.9	-0.1	3151	0	4	0	9.2	0.8
DHL	115	16	100	3.6	-1.3	114	1	18	2	13.0	3.4
DLH	2549	0	8	1.9	0.2	2556	0	10	1	8.2	0.6
DOA	29	17	28	3.5	1.3	31	0	6	0	12.2	1.7
ELY	162	1	11	1.6	-0.3	168	1	14	1	11.0	2.2
EWW	117	2	72	3.1	1.0	122	1	100	0	11.7	2.5
FCL	21	0	5	2.7	-0.5	21	0	5	0	6.3	1.2
FDX	324	2	4	1.9	0.5	327	0	4	0	9.1	1.5
FIN	327	0	2	2.0	0.2	326	1	2	0	8.7	1.5
GAF	128	0	1	2.2	-0.7	128	1	3	1	8.1	1.4
GTI	30	0	17	4.5	2.6	30	3	7	0	7.3	2.1
HLF	96	0	2	2.0	-0.6	95	0	4	0	10.5	1.5
IBE	1026	1	16	2.3	0.8	1030	0	19	0	10.8	1.4
ICE	839	0	1	1.7	0.1	842	0	2	0	8.0	0.6
JAL	20	0	0	1.6	0.7	20	0	0	0	9.1	-0.5
KLM	2282	0	2	1.8	0.1	2320	0	3	0	8.7	0.6
LDA	168	1	11	1.9	-1.1	173	0	12	0	10.3	1.7
LDI	313	0	23	3.5	2.4	319	0	23	0	10.1	0.9
LIB	57	0	2	1.4	0.5	60	0	7	0	9.8	1.4
LKR	35	0	0	2.0	0.9	35	0	0	0	8.5	0.3
LOT	318	0	2	2.2	-0.8	316	1	3	0	10.3	0.6
LTU	657	0	4	1.8	0.3	662	0	6	0	9.0	1.3
MPD	115	1	9	2.3	0.9	114	0	11	0	9.8	1.2
MPH	641	0	3	2.0	-0.5	649	0	4	0	8.6	0.7
NWA	2973	0	1	2.0	0.7	2997	0	3	0	9.0	0.4
OAL	28	0	0	2.5	1.9	29	0	7	0	11.5	0.7
RAM	42	0	0	1.6	-0.4	40	3	8	0	10.2	0.6

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RCH	192	0	100	2.6	0.9	193	1	100	0	13.5	1.4
RJA	100	2	9	2.2	0.8	100	0	5	0	6.2	0.2
ROY	223	0	2	1.7	-0.2	228	0	4	0	8.7	0.4
RRR	88	2	10	2.4	1.1	91	0	9	0	9.7	0.5
SAB	76	0	0	1.4	0.3	77	0	0	0	7.8	1.9
SAS	1146	0	1	2.0	0.2	1150	0	2	0	8.5	0.4
SHE	21	0	19	4.4	3.3	21	0	14	0	8.3	-0.6
SIA	87	2	6	2.0	-0.8	87	0	7	1	8.7	-0.1
SLR	97	0	23	1.8	-0.6	98	0	27	0	12.1	2.0
SPP	42	0	2	1.4	0.0	42	0	7	0	9.3	1.7
SSV	81	0	2	2.2	0.0	83	0	0	0	6.0	-0.3
SVA	136	1	7	1.8	-0.4	136	0	100	0	13.3	2.4
SWR	169	1	4	1.7	0.5	175	0	3	0	6.9	1.2
TAP	372	1	3	1.9	-0.3	366	0	4	0	10.2	1.2
THY	31	6	23	3.3	2.4	34	0	12	0	6.9	-0.1
TOW	160	1	4	2.2	0.6	162	0	5	0	9.1	2.1
TSC	139	1	5	2.3	0.1	138	0	5	0	9.5	0.5
TWA	1432	0	2	1.9	0.4	1431	0	3	0	9.5	1.1
UAL	1842	0	2	1.9	-0.1	1861	0	2	0	8.0	0.5
ULE	181	1	2	1.9	0.5	180	0	2	0	8.4	1.3
UPS	219	0	14	1.5	0.1	227	0	14	0	8.9	0.9
USA	420	3	3	1.9	0.2	419	0	1	0	8.8	1.5
VIR	237	0	1	1.7	-0.2	247	0	4	0	8.5	0.9
VKG	48	0	0	2.0	1.0	49	0	2	0	10.9	1.9
WOA	42	0	2	1.4	0.6	44	0	7	0	9.5	1.1
BA	6498	0	0	1.3	0.3	6498	0	0	0	7.2	0.9
KL	4760	0	11	1.4	0.8	4757	0	11	0	6.7	0.7
LH	720	0	1	1.5	0.4	715	0	1	0	6.9	1.4
N	353	0	2	2.6	0.7	361	0	4	1	10.5	0.8
US_ACAR	10284	0	0	1.4	0.2	10283	0	0	0	7.3	0.9

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
CGDX	00	Z	100	1	0	0.0	5.0	5.0
DBBH	00	Z	100	1	0	0.0	41.0	41.0
DBBH	12	Z	100	4	0	12.2	21.8	18.0
DBLK	00	Z	100	1	0	0.0	34.0	34.0
DBLK	12	Z	100	10	0	24.5	27.0	11.2
FNOR	00	Z	100	12	0	19.1	27.1	19.3
FNOR	12	Z	100	11	0	15.8	22.2	15.5
FNOU	00	Z	100	15	0	16.7	19.2	9.6
FNOU	12	Z	100	16	0	17.3	20.0	10.1
FNPH	00	Z	100	12	0	14.5	17.9	10.5
FNPH	12	Z	100	12	0	15.1	15.1	-0.3
FNRS	00	Z	100	15	0	17.7	17.8	-1.9
FNRS	12	Z	100	13	0	15.2	15.4	2.2
JBOA	00	Z	100	1	0	0.0	25.0	25.0
JCCX	00	Z	100	1	0	0.0	11.0	11.0
JGQH	00	Z	100	1	0	0.0	14.0	14.0
LDWR	00	Z	100	28	0	16.5	16.9	3.4
LDWR	12	Z	100	27	0	12.7	12.7	0.1
OXVH2	00	Z	100	15	0	16.5	21.8	-14.3
OXVH2	12	Z	100	14	0	39.6	42.2	-14.6
OXYH2	00	Z	100	10	0	14.7	22.9	-17.6
OXYH2	12	Z	100	9	0	10.2	10.5	2.6
SHIPS	00	Z	100	4	0	38.8	61.1	47.3
SHIPS	12	Z	100	3	0	26.4	52.2	45.0
V2EZ	00	Z	100	6	0	12.7	12.7	1.3
V2EZ	12	Z	100	7	0	16.5	19.5	10.4
V2VM	00	Z	100	16	0	15.9	17.0	6.0
V2VM	12	Z	100	17	0	13.0	17.2	11.2
V2XM	00	Z	100	5	0	19.9	22.2	-10.0
V2XM	12	Z	100	2	0	22.0	27.8	17.0
WTEC	00	Z	100	1	0	0.0	13.0	13.0
XXBA	12	Z	100	6	0	33.3	66.4	57.5
ZDLP	00	Z	100	1	0	0.0	99.0	99.0
ZDLP	12	Z	100	1	0	0.0	119.0	119.0
03953	00	Z	100	29	0	12.4	13.1	4.2
03953	12	Z	100	29	0	13.9	16.6	9.1
04018	00	Z	100	29	0	12.6	17.7	-12.4
04018	12	Z	100	30	0	17.6	17.7	2.2
04220	00	Z	100	31	0	18.4	18.7	-3.0
04220	12	Z	100	28	0	12.0	12.8	4.5
04270	00	Z	100	31	0	20.5	21.6	-6.6
04270	12	Z	100	30	0	21.4	21.7	-3.8
04339	00	Z	100	29	0	19.1	19.8	5.3
04339	12	Z	100	30	0	12.9	19.6	14.8
04360	00	Z	100	27	0	17.9	19.1	-6.6
04360	12	Z	100	31	0	15.4	16.6	-6.2
08001	00	Z	100	28	0	14.8	14.9	1.8
08001	12	Z	100	27	0	16.2	16.4	-2.1
08508	00	Z	100	29	0	12.9	14.4	6.3
08508	12	Z	100	31	0	15.9	20.3	12.6
08522	00	Z	100	31	0	10.6	24.1	21.6
08522	12	Z	100	31	0	10.6	19.2	16.0
08594	00	Z	100	1	0	0.0	13.0	13.0
60020	00	Z	100	27	0	11.2	29.9	27.7
60020	12	Z	100	31	0	13.4	25.3	21.4
71600	00	Z	100	31	0	16.7	17.3	4.8
71600	12	Z	100	31	0	11.4	11.4	0.4
72201	00	Z	100	25	1	15.1	19.1	11.6
72201	12	Z	100	27	0	22.9	29.0	17.8
72402	00	Z	100	30	0	18.2	21.7	11.7
72402	12	Z	100	30	0	42.0	43.8	12.5
74494	00	Z	100	22	0	23.2	24.4	-7.6
74494	12	Z	100	31	0	21.8	24.2	10.4
78016	00	Z	100	29	0	18.7	26.6	18.9
78016	12	Z	100	29	0	10.8	22.4	19.6

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
CGDX	00	Z	500	1	0	0.0	4.0	-4.0
DBBH	00	Z	500	1	0	0.0	11.0	11.0
DBBH	12	Z	500	4	0	12.4	12.9	3.5
DBLK	00	Z	500	1	0	0.0	11.0	11.0
DBLK	12	Z	500	9	0	10.4	13.5	8.6
F/PH	00	Z	500	1	0	0.0	21.0	-21.0
FNOR	00	Z	500	12	0	10.7	14.2	9.3
FNOR	12	Z	500	12	0	8.8	16.9	14.5
FNOU	00	Z	500	15	0	11.4	14.6	9.1
FNOU	12	Z	500	17	0	16.0	18.3	8.9
FNPH	00	Z	500	13	0	18.3	20.2	8.7
FNPH	12	Z	500	12	0	9.5	14.7	11.3
FNRS	00	Z	500	16	0	23.4	23.4	-0.8
FNRS	12	Z	500	14	0	9.7	10.4	3.6
JBOA	00	Z	500	1	0	0.0	1.0	1.0
JCCX	00	Z	500	1	0	0.0	10.0	10.0
JGQH	00	Z	500	1	0	0.0	4.0	4.0
LDWR	00	Z	500	27	0	10.0	13.5	9.1
LDWR	12	Z	500	27	0	16.1	16.3	2.7
OXVH2	00	Z	500	18	0	16.0	16.0	0.6
OXVH2	12	Z	500	14	0	39.0	40.7	-11.5
OXYH2	00	Z	500	10	0	8.8	14.6	-11.7
OXYH2	12	Z	500	11	0	11.7	13.2	-6.1
SHIPS	00	Z	500	4	0	11.2	24.5	21.8
SHIPS	12	Z	500	3	0	3.3	8.0	7.3
V2EZ	00	Z	500	7	0	9.6	13.4	9.4
V2EZ	12	Z	500	7	0	11.9	16.1	10.9
V2VM	00	Z	500	16	0	10.5	10.6	1.0
V2VM	12	Z	500	20	0	9.7	10.1	2.8
V2XM	00	Z	500	5	0	7.7	15.3	13.2
V2XM	12	Z	500	2	0	11.5	17.7	13.5
WTEC	00	Z	500	1	0	0.0	34.0	34.0
XXBA	12	Z	500	9	0	17.4	31.9	26.7
ZDLP	00	Z	500	1	0	0.0	85.0	85.0
ZDLP	12	Z	500	1	0	0.0	78.0	78.0
03953	00	Z	500	31	0	12.0	13.6	6.4
03953	12	Z	500	31	0	8.9	11.6	7.5
04018	00	Z	500	31	0	13.2	13.5	2.7
04018	12	Z	500	31	0	12.0	14.7	8.5
04220	00	Z	500	31	0	12.1	13.5	-5.9
04220	12	Z	500	27	0	11.5	13.2	-6.4
04270	00	Z	500	31	0	14.3	15.4	5.8
04270	12	Z	500	31	0	15.0	15.3	2.9
04339	00	Z	500	29	0	12.4	12.5	2.0
04339	12	Z	500	30	0	12.3	12.5	2.3
04360	00	Z	500	29	0	12.7	12.8	-0.9
04360	12	Z	500	31	0	14.7	14.7	-0.8
08001	00	Z	500	30	0	16.9	17.0	2.0
08001	12	Z	500	27	0	14.7	14.8	-1.7
08508	00	Z	500	30	0	14.8	14.9	1.7
08508	12	Z	500	31	0	14.6	15.4	4.9
08522	00	Z	500	31	0	8.7	15.9	13.3
08522	12	Z	500	31	0	10.1	14.6	10.5
08594	00	Z	500	1	0	0.0	5.0	-5.0
60020	00	Z	500	27	0	8.2	24.0	22.5
60020	12	Z	500	31	0	7.9	23.8	22.5
71600	00	Z	500	31	0	9.8	12.6	7.8
71600	12	Z	500	30	0	13.3	15.8	8.5
72201	00	Z	500	28	1	7.7	14.2	12.0
72201	12	Z	500	28	0	10.6	12.5	6.6

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	00	Z	500	30	0	9.2	9.6	2.7
72402	12	Z	500	30	0	11.5	11.5	-0.3
74494	00	Z	500	31	0	11.1	11.8	3.9
74494	12	Z	500	31	0	9.9	9.9	1.0
78016	00	Z	500	27	0	9.5	20.7	18.4
78016	12	Z	500	30	0	7.8	18.7	17.0

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
CGDX	00	V	100	1	0	0	0.0	0.3	-0.3
DBBH	00	V	100	1	0	0	0.0	-3.1	2.2
DBBH	12	V	100	4	0	0	0.0	2.9	-0.9
DBLK	00	V	100	1	0	0	0.0	-1.2	-2.5
DBLK	12	V	100	10	0	0	0.0	3.4	-1.2
FNOR	00	V	100	8	0	0	6.6	1.3	4.1
FNOR	12	V	100	8	0	0	6.6	0.1	-0.3
FNOU	00	V	100	11	1	8	6.6	-6.9	-2.6
FNOU	12	V	100	11	0	0	3.2	1.2	-0.2
FNPH	00	V	100	9	0	0	4.9	1.1	1.9
FNPH	12	V	100	9	0	0	4.9	0.7	0.1
FNRS	00	V	100	10	0	10	4.9	2.1	2.0
FNRS	12	V	100	12	0	0	4.9	0.8	0.2
JBOA	00	V	100	1	0	0	2.3	1.1	-0.9
JCCX	00	V	100	1	0	0	4.0	-0.3	1.2
JGQH	00	V	100	1	0	0	4.0	-1.2	0.8
LDWR	00	V	100	28	0	0	6.1	-0.5	0.7
LDWR	12	V	100	26	0	0	2.4	-0.3	0.2
OXVH2	00	V	100	3	0	33	2.3	-8.1	-2.6
OXVH2	12	V	100	2	0	50	2.3	-7.5	-3.1
V2EZ	12	V	100	1	0	0	2.3	-1.2	0.9
V2VM	00	V	100	13	0	0	2.3	1.0	1.2
V2VM	12	V	100	13	0	0	5.4	1.2	1.2
V2XM	00	V	100	5	0	0	4.1	-1.6	-1.4
V2XM	12	V	100	2	0	0	4.1	0.4	2.2
03953	00	V	100	29	0	0	2.9	1.0	1.0
03953	12	V	100	29	0	0	2.2	0.8	1.6
04018	00	V	100	27	0	0	1.8	-0.6	1.5
04018	12	V	100	29	0	0	3.1	0.0	0.6
04220	00	V	100	30	1	3	1.9	-3.9	-1.2
04220	12	V	100	28	0	0	2.5	-0.6	0.5
04270	00	V	100	30	0	0	2.7	0.4	0.4
04270	12	V	100	30	0	0	3.9	-1.2	1.3
04339	00	V	100	24	0	4	3.2	0.0	-0.3
04339	12	V	100	28	0	0	4.8	1.1	0.5
04360	00	V	100	24	0	0	3.3	0.3	-0.2
04360	12	V	100	25	0	0	3.1	0.6	1.2
08508	00	V	100	29	0	0	3.4	1.0	1.8
08508	12	V	100	30	0	0	3.5	1.0	0.1
60020	12	V	100	3	0	0	4.0	-1.4	0.7
71600	00	V	100	31	0	0	3.9	0.7	0.4
71600	12	V	100	30	0	0	2.6	-0.3	1.0
72201	00	V	100	25	1	3	2.8	0.4	-4.4
72201	12	V	100	27	0	0	4.2	0.9	-0.6
72402	00	V	100	30	0	0	2.3	0.0	1.2
72402	12	V	100	30	0	0	2.4	0.6	0.6
74494	00	V	100	21	0	0	2.1	0.6	0.8
74494	12	V	100	30	0	0	2.0	0.4	1.3
78016	00	V	100	27	0	0	10.5	0.3	1.4
78016	12	V	100	29	0	0	3.6	0.9	1.5

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
CGDX	00	V	500	1	0	0	0.0	1.3	-1.4
DBBH	00	V	500	1	0	0	0.0	2.2	-1.5
DBBH	12	V	500	3	0	0	0.0	1.4	0.3
DBLK	00	V	500	1	0	0	0.0	2.0	1.4
DBLK	12	V	500	8	0	0	0.0	-0.3	-2.4
F/PH	00	V	500	1	0	0	0.0	3.3	-12.2
FNOR	00	V	500	11	0	0	0.0	-1.1	0.1
FNOR	12	V	500	10	0	0	3.0	-2.0	-1.3
FNOU	00	V	500	10	0	0	3.2	0.8	-0.2
FNOU	12	V	500	14	0	0	5.8	1.3	0.1
FNPH	00	V	500	11	0	0	2.6	0.5	-2.4
FNPH	12	V	500	10	0	0	6.2	-0.9	-0.5
FNRS	00	V	500	11	0	9	3.7	2.6	-1.3
FNRS	12	V	500	11	0	0	2.9	-0.4	0.3
JBOA	00	V	500	1	0	0	3.1	-1.2	-0.8
JCCX	00	V	500	1	0	0	5.6	1.2	-1.2
JGQH	00	V	500	1	0	0	5.6	0.4	-1.4
LDWR	00	V	500	27	0	0	1.6	0.8	0.5
LDWR	12	V	500	26	0	0	2.7	-0.1	-0.2
OXVH2	00	V	500	1	0	0	3.0	-3.5	3.9
OXVH2	12	V	500	1	0	100	3.0	-19.2	-10.7
V2EZ	12	V	500	2	0	0	3.0	-0.8	-0.6
V2VM	00	V	500	15	0	0	3.0	1.2	-0.3
V2VM	12	V	500	16	1	5	3.9	4.0	-1.0
V2XM	00	V	500	5	0	0	3.7	2.4	0.8
V2XM	12	V	500	2	0	0	3.7	0.2	1.9
03953	00	V	500	30	0	0	2.8	0.3	0.6
03953	12	V	500	31	0	0	4.1	0.3	1.3
04018	00	V	500	30	0	0	3.3	0.2	0.3
04018	12	V	500	30	0	0	4.9	-0.1	1.3
04220	00	V	500	30	0	0	3.1	0.1	0.3
04220	12	V	500	27	0	0	3.1	-0.1	0.4
04270	00	V	500	30	0	0	2.7	2.2	1.3
04270	12	V	500	31	0	0	3.8	-0.6	1.5
04339	00	V	500	20	0	0	4.3	0.0	-0.8
04339	12	V	500	28	0	0	5.3	2.0	0.5
04360	00	V	500	27	1	3	4.0	-3.9	-0.4
04360	12	V	500	26	0	0	3.2	-0.2	0.5
08508	00	V	500	30	0	0	2.8	-0.8	-0.5
08508	12	V	500	30	0	0	4.0	0.6	0.5
60020	00	V	500	1	0	0	2.1	4.8	-5.2
60020	12	V	500	2	0	0	2.1	-0.2	-2.1
71600	00	V	500	31	0	0	3.7	1.0	0.3
71600	12	V	500	30	0	0	2.9	0.7	-0.7
72201	00	V	500	27	0	0	4.9	0.3	-1.2
72201	12	V	500	28	0	0	3.3	-0.2	0.1
72402	00	V	500	30	0	0	2.8	0.4	-0.2
72402	12	V	500	30	0	0	2.5	-0.3	-0.6
74494	00	V	500	31	0	0	1.9	0.3	0.3
74494	12	V	500	31	0	0	2.8	-0.1	2.1
78016	00	V	500	27	0	0	3.6	0.6	0.0
78016	12	V	500	30	0	0	3.6	0.5	0.7

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45